

**THE
RAILWAY GAZETTE**

A Journal of Management, Engineering and Operation
INCORPORATING

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DIESEL RAILWAY TRACTION

A Supplement illustrating and describing developments in Diesel Railway Traction is presented with every copy of this week's issue

Light to Read by

THE fact of our defence services having already given proof that we have some hope of avoiding the widespread destruction from the air at one time foretold, has not induced a general toleration of some of the minor inconveniences of the war. Railway carriage lighting in the blackout has been under ceaseless fire, and the railways have acted appropriately to their position as a great public service by making efforts to reduce the grounds for complaint. Experiments have been made with blue lamps of varying opacity, and dining cars have been blacked out completely so that those within may dine with full illumination. Last week an announcement of still wider interest was made when a written reply by the Minister of Transport to a question in the House of Commons stated on October 18 that it would be permissible for white lighting sufficient to read by to be installed in the corridor stock of long-distance trains. Its use would be conditional upon all blinds being kept drawn, and the lights would be extinguished by a master switch in the event of

an air raid warning. Meanwhile, the Minister announced, investigation is continuing of means of improving lighting of suburban trains—the subject which affects the greater number and is the chief target of criticism. The frequent stops and opening of doors on suburban trips are a leading problem, and a remedy such as arranging for every door to switch off the compartment light or switch over to a blue bulb would be complicated and expensive. It is to be hoped that the co-operation of the public could be relied upon not to raise the blinds and so avoid the trouble of fitting locking devices. The matter is bound to be increasingly pressed in the coming weeks and the travelling public is not the only interested party. There will be an alarming effect, for instance, upon the sales of evening newspapers if the suburban travellers who are their most regular purchasers drop the habit because they can no longer read on the way home.

* * *

Road Accidents and the Blackout

The difference between supposition and knowledge was demonstrated strikingly last week when the Secretary to the Ministry of Transport issued the return of the numbers of persons who lost their lives in Great Britain during September as the result of road accidents. The whole month of September was subjected to the blackout regulations and reports in the daily press had already made it clear that there had been a resultant rise in the number of fatalities, but in the absence of precise information many persons were optimistic enough to assume that the figure would be considerably lower than the actual total of 1,130. Precise comparisons are difficult, as, of course, the blackout regulations coincided with war conditions, during which a considerable volume of pleasure traffic no longer ran. On the other hand the petrol restrictions did not come into force until September 23. Although these and similar considerations invalidate precise comparison with other months, there could be little doubt that their general tendency is to worsen the position of the first blackout month. The total of 1,130 compares with 554 in September, 1939; the August figures were 617 in 1939 and 563 in 1938. The greatest rise in fatalities was with adult pedestrians; the September, 1938, figure of 148 rose to 551. Children under 15 years of age were not markedly affected, which is an interesting commentary on the removal of evacuated children from the perils of town. An analysis of the figures will be found on page 565.

* * *

Earnings a Mile in the U.S.A.

Statisticians in the United States compute the capital cost of the average mile of railway in that country as £22,200, if the £ sterling be taken as equivalent to \$5. During the first half of 1939, the average mile of line earned about £1,544 gross, a sum made up of £1,244 from freight traffic, £170 only from the carriage of passengers, and £130 from mails, express, and miscellaneous sources. Working expenses, on the other hand, totalled some £1,199 a mile, which figure includes £584 to cover the cost of train operation, £314 for maintenance of equipment, £188 on civil engineering maintenance account, £45 devoted to securing traffic by the commercial staff, and £68 under other heads of expenditure. Net operating revenue was thus £345 a mile, of which £148 were swallowed up in taxes, and £56 in rentals for equipment and jointly-used facilities, leaving a mere £141 to meet half a year's interest upon the £22,200 outlay. Taking into account seasonal variations of traffic, our American contemporary, the *Railway Age*, considers this equivalent to about 1.57 per cent. interest on a full year's working.

Barsi Light Railway Company

This railway of 203 miles on the 2 ft. 6 in. gauge connects at Miraj in the Deccan States with the metre-gauge Poona line of the Madras & Southern Mahratta, and at Kurduvadi with the broad-gauge Poona—Raichur section of the Great Indian Peninsula, and terminates at Latur in Hyderabad. The first section of 21½ miles from Kurduvadi Junction to Barsi Town was opened in March, 1897, and its mileage has been unchanged since the opening of the extension from Pandharpur to Miraj in November, 1927. It has efficient tranship arrangements with other gauges, and for the ten years ended March 31, 1929, it regularly distributed 12 per cent. on its ordinary capital.

	1937-1938	1938-1939
	Rs.	Rs.
Coaching traffic receipts	9,15,039	9,28,199
Goods traffic receipts	9,30,043	9,26,465
Total receipts	18,45,082	18,54,664
Working expenses	10,58,378	10,56,132
Net earnings	7,86,704	7,98,532

The latest dividend is restricted to 3½ per cent. in order to conserve the company's resources in the present emergency.

* * * *

Calculating Train Schedules

In recent years the function of the calculating machine has been extended from the simple processes of arithmetic to handle calculations which involve the technique of the calculus, such as evaluating the solution of differential equations. The machine required for this purpose is called a differential analyser, and one or two full-size examples are in existence in this country; the first establishment to possess one was the University of Manchester. Among practical uses to which the differential analyser has been put is the calculation of train running times, which formed the subject of a paper last winter to the Manchester Literary & Philosophical Society by Professor D. R. Hartree and Mr. J. Ingham. Many different methods, both numerical and graphical, have been devised in the past for the solution of this problem; indeed, in a paper read in 1931 to the Institution of Mechanical Engineers, Professor Lomonosoff claimed that at least forty different methods had been worked out for obtaining the necessary information which, in brief, is the ideal division of train running times over any given route relatively to load and the power of the locomotive used. The other principal variables are gradients and service slacks; though there are still further variables, such as weather, inferior coal, variation in driving method, and so on, which no mechanical method of calculation could reduce to any systematic basis of estimation.

* * * *

Technical Institutions and the War

Information reaching us shows that the various technical institutions are trying to continue their activities so far as possible during the present exceptional time. Meetings have mostly had to be cancelled for the present, except in certain favourable circumstances. The restricted lighting and travelling facilities will make the holding of evening meetings practically impossible in the winter for most institutions, while many people cannot attend afternoon gatherings for business reasons. The field of certain institutions being rather specialised, they have fewer members than others and no premises of their own to meet in, but almost all have a good proportion of overseas members, from whom papers and other communications might be obtained to assist in filling the gap which conditions at home must inevitably occasion. Some institu-

tions are therefore concentrating on making their official journal the medium of association for the time being, and appealing to overseas friends to help them to a more than usual extent in the task. It is encouraging to find that all are resolved to maintain their professional facilities and advantages to the fullest extent possible, in spite of every difficulty. War is really the negation of every true function of engineers and nobody would more gladly see an end to it than they.

* * * *

The Driver's Task in the Blackout

In an editorial note last week, we referred to the effect of the blackout in bringing signal lights into greater relief and rendering them more easily discernible. While this may be an advantage of the present conditions, it must also be remembered that a driver has other things to consider besides signals and uses his observation of numerous objects alongside the line to assist him in driving safely and locating his position. The blackout has the effect of practically obliterating such things after dark, leaving him to identify passing objects by sound, as when going through or over a bridge, or by the action of the locomotive as changes of gradient are encountered. From this point of view the blackout is disadvantageous, as an accurate appreciation of his whereabouts is very important for a driver in handling his train efficiently. At the same time we hope that when lighting is restored we shall see more regard paid to keeping down the interfering effect of lights, so that signals will stand out better than formerly, and especially the glare from illuminated signs of the neon variety, which has shown a tendency in recent years to become a real nuisance.

* * * *

Transatlantic Air Lines

On Saturday, September 30, the first regular experimental air mail service across the Atlantic from Southampton to New York, via Foynes, Botwood, and Montreal was completed by the arrival of the Imperial Airways flying boat *Cabot* at its base in this country. The programme, which embraced eight journeys each way over a period of eight weeks starting from August 5, has been carried out unostentatiously and without a hitch. Twelve of the sixteen journeys have been ahead of schedule and on the weekend of September 23-24, the *Cabot* achieved the fastest time so far recorded for the Atlantic crossing from East to West by flying from Foynes to Botwood (Newfoundland) in exactly 13 hr. Altogether 50,000 miles have been flown. In view of the withdrawal, since the war, of meteorological facilities and the restrictions on radio communications both from aircraft and from ships, the successful accomplishment of these flights is a great tribute to the skill of the navigators. Imperial Airways Limited has also recently been operating a flying-boat ferry service to connect with the Pan American Airways transatlantic service which, since the outbreak of war, has terminated in Eire, at Foynes on the River Shannon.

* * * *

Reinforced-Concrete Sleepers in Netherland India

Trials have been made with reinforced-concrete sleepers in Netherland India, where financial conditions since 1930 have led to examining every method by which costs could be reduced and old material used. An article in *Spoor-en Tramwegen* for August 5 by Mr. W. A. Zonneveld records that successful results had been obtained from 1921 onwards with reinforced-concrete longitudinal sleepers in the locomotive sheds at Samarang, and at first in 1930 attempts were made to form sleepers out of lengths of old rail. These were not successful and attention was turned

to combining a length of rail with concrete blocks to form a sleeper. Various designs were tried, using the rail piece head downwards and head upwards and different forms of rail fastenings and bearing plates. The coachscrew holes in the concrete blocks were lined with wire spirals, the blocks themselves having, in some designs, heavy wire reinforcement worked into them. The most satisfactory form of sleeper, which has proved fully able to bear main-line traffic, has the transverse rail piece extending the full width over the faces of the blocks, arranged head downward and carrying bearing plates through which the running rails are secured by coachscrews in the manner above mentioned. The train running is stated to be very quiet, and the adoption of such sleepers is expected to assist in meeting the present financial difficulties of the railways in Netherland India, where the price of wooden sleepers has reached a very high figure.

* * * *

The "Cornwall"

The recent death of Mr. A. R. Trevithick, one-time Carriage Superintendent of the L.N.W.R., and grandson of the "Cornish Giant," calls to mind the *Cornwall*, the celebrated single-wheeler of the L.N.W.R., built in 1847 by his father, F. H. Trevithick, Locomotive Superintendent, Northern Division, L.N.W.R. To overcome the supposed difficulties of getting a reasonable size of boiler in conjunction with the very large driving wheels which at that time were thought essential for high speed, the boiler was below the driving axle of the 8 ft. 6 in. wheels, and was well cut away above the tubes to clear the axle. The engine was shown at the 1851 Exhibition, and subsequently was credited with having attained a speed of 117 m.p.h. down Madeley bank, but there is not the slightest authentic evidence that it ever attained anything like the three-figure mark. In 1858 it was rebuilt with a normal type of boiler, and an appearance not unlike that of the engine as now existing, except that the cab was added about 20 years later and the chimney was changed. Another rebuild was given in the 'eighties, and the engine ran until 1902, often on the Liverpool—Manchester expresses. After a period out of service it was re-commissioned to haul the C.M.E.'s saloon, but was finally withdrawn after the war of 1914-19, and is now preserved at Crewe works.

* * * *

After Dark

A notice warning passengers in London Transport trains to make sure they alight on the platform side is reinforced by the large-print slogan, "look out." In some parts of the country the problem is not merely to locate the platform but to identify the station. The complete stranger no doubt satisfies himself by inquiry, and it is the man who feels he ought to know where he is who begins to have misgivings after he has surrendered his ticket and entered the darkened streets which might belong to any town in the United Kingdom. Our own doubts on such an occasion recently were strengthened by the peculiar circumstances in which we had begun our journey. Enquiring whether the platform on which we stood was the one for the train to our destination, we were informed by a darkly flitting shape who seemed to be wearing the company's uniform that "it should be." It was apparently a matter of idealistic hope rather than scientific certitude, and the idealism, as occasionally happens, was disappointed, for the train came in on another line. We have read old tales of malignant spirits assuming harmless disguises to mislead benighted travellers, but were unprepared to meet one on a railway station in a 1939 blackout.

Railway Wages

LAST weekend the Railway Staff National Tribunal published its findings on the claims of the three railway trade unions for increased wages and improvements in conditions of service, and the result—if accepted by the parties—will add, directly and indirectly, a sum of approximately a million pounds per annum to the labour costs of the four main-line railways. In order to see the findings in their proper perspective it is necessary to review the circumstances leading to their issue. In January last the tribunal gave a long hearing to claims of the unions, and, apart from minor concessions, unanimously found against the claims, in most cases mainly on the ground of the big cost involved. The result of the hearing did not satisfy the unions, who continued to press their demands, and when it was seen at the turn of the half year that a substantial increase in railway traffic receipts had been recorded the unions grew more insistent. For its part the N.U.R. resolved to subordinate all its other claims until the one which it regarded as of prime importance had been conceded. This claim was for a minimum rate of 50s. a week for all adult workers, and it found support, too, from the R.C.A. The third union—the Associated Society of Locomotive Engineers & Firemen—however, saw no reason to abandon any of its demands in favour of the lowest paid workers, despite the fact that the tribunal had given a very plain indication that the minimum wage claim of the N.U.R. would be given some priority of treatment so soon as the companies' revenue position permitted any increase whatsoever in labour costs. Discussions through the agreed machinery of negotiation continued in the hope of reaching an amicable settlement, but without success.

The N.U.R. and the R.C.A. expressed their willingness to the difference being submitted to the tribunal in the light of the altered financial position of the companies, but the A.S.L.E.F. was not in accord and gave notice of its intention to call a strike of locomotivemen on August 26 if its demands were not at once met. The situation was serious, especially as war clouds were rolling up on the horizon. It became so serious that the Minister of Labour intervened and after a period of some anxiety the danger of a strike was averted on the very eve of the outbreak of war. By the agreement then signed the unions agreed with the companies to make another appeal to the tribunal. The companies offered to expedite a hearing, and this took place in London on September 19 and 20—the first important industrial arbitration since war began. The findings now issued do not concede any claim in full, and all are unanimous except those relating to the minimum wage claim of the N.U.R. In this case the Chairman, Sir Arthur Salter, and the member nominated by the unions, Mr. H. J. May, recommend a minimum weekly rate for men of 50s. in London, 48s. in industrial areas, and 47s. in rural areas; and for women 38s. in London, 36s. 6d. in industrial areas, and 35s. in rural areas. The member nominated by the companies, Mr. H. E. Parkes, recommends a minimum rate for men of 48s. in London and 46s. 6d. in industrial areas. Both these new rates show increases, and Mr. Parkes recommends the continuance of the present rate of 45s. in rural areas. He finds himself in agreement with the rates proposed for women by the other two members of the tribunal.

So far as locomotive men are concerned, the tribunal awards an increase of a shilling a day in the minimum rate of drivers and motormen, which thus becomes 13s. a day. The tribunal also makes important alterations in the minimum payments for Sunday duty performed by conciliation grades, and also by salaried staff, although

we may observe, in passing, that the alteration in respect of salaried grades does not appear to have formed part of the claims submitted on this occasion. A claim relating to payment for night duty worked by salaried staff not in receipt of an aggregation allowance is conceded by the tribunal, which recommends that its findings should take effect from the first full pay period after October 28, thus giving but a very brief period for consideration by the parties. The differing recommendations on the minimum wage claim must provoke some discussion although the principal reason for the difference is obviously one of cost. The majority recommendation will cost, directly, £414,000 a year, and consequential increases, to bring other wage rates into due relation, will cost £350,000. The wage increases for drivers and motormen will cost £39,000, the changes in Sunday duty payments £150,000, and there is £58,000 for additional payments for salaried staff night duty. The tribunal's findings are unlikely to satisfy, fully, any of the claimants, but it seems clear that Sir Arthur Salter, and his two colleagues, were faced with a series of difficult problems and conflicting interests, and they have endeavoured to work out a compromise to give something to nearly everyone—except, of course, the companies! The concessions recommended will benefit a considerable number of grades and the unions must regard, with no small satisfaction, their success in securing increases in certain minimum rates which have endured over very many years. There remains now the even more difficult problem of paying for the concessions recommended. By this decision of the tribunal a million pounds is added to the companies' salaries and wages bill, which already stands at well over a hundred million pounds a year.

* * * *

The General Utility Locomotive

THE ideal locomotive, dreamed of and longed for by the operating departments of large railway systems everywhere, is one that could "go anywhere and do anything." This, indeed, was the definition put forward, perhaps only half seriously, by the late Mr. J. H. Follows, then Chief General Superintendent of the L.M.S.R., when we discussed the subject with him in his office at Derby shortly after his appointment to that position in 1923. As we stated in the editorial columns of our issue of February 19, 1932, when recording his retirement, he pleaded for something in the nature of a "universal" type of engine to dispose of the majority of the operating problems with which he had to deal. As we then pointed out, unfortunately for the full realisation of this idea, conditions are such as to make it impossible for the locomotive departments to provide such an engine owing to the numerous and conflicting operating circumstances associated with questions of gauge, track and structures, axle loadings, clearances of one kind or another, and the proper observance of economy in working. It is, however, possible nowadays, by the exercise of designing skill and the most careful selection of dimensions, aided by the advances made in the metallurgical field, to produce a mixed traffic engine which, although not capable of giving entirely ubiquitous service, can and does go a long way in that direction. The factor that is new in the most recent designs is the increased range due to the ability of the modern engine to run at high speeds, a result of the improvements which have been made in valve-gear and steamport design. Hence what might formerly have been regarded as somewhat Utopian need no longer be dismissed as belonging to that category.

Locomotives are to be found on railways at home and abroad which cannot be said to rank precisely as belong-

ing to any one classification; they are neither express passenger, freight, nor "coal" engines in the accepted meanings of the terms, but nevertheless by virtue of their design and proportions they can undertake, with reasonable efficiency the work of any of these. There are, of course, limiting circumstances which if used as a basis of comparison would sometimes show the engine at a disadvantage, and the term "mixed traffic" must not in this connection be confused with "jack-of-all-trades" or to be more exact, of all traffics. A successful locomotive of this description provides a most valuable asset to a railway company, and when built in large numbers a considerable saving in first and maintenance costs results from the repetition methods applying to both production and repair. Among the factors to be considered in designing such an engine are (i) reasonable simplicity of design, (ii) compromise in the selection of dimensions, (iii) questions of varying loading gauges, track standards, axle loadings, &c., and (iv) extended engine workings; and although at first sight some of the factors may appear in a measure irreconcilable, practice shows that in modern circumstances this is no longer prominently so.

Investigation of this subject in the abstract is made easier when associated with a study of concrete cases of locomotives planned to meet mixed traffic requirements. An excellent example of modern practice is found in the Class "5" 4-6-0 engines introduced by Mr. Stanier on the L.M.S.R. in 1935. Since that year nearly 500 have been built, representing a very considerable capital cost; the engines have, however, proved so successful in working under a wide range of service conditions on virtually all parts of the company's system, so economical in fuel and maintenance, and so generally satisfactory, that the investment must be regarded as excellent. From the strictly locomotive point of view the Class "5" series are admirable alike in respect of their undoubted efficiency, compactness, symmetry of appearance, and ubiquity of service. The article beginning at page 544 of this issue provides a detailed description of the locomotive, together with dynamometer car test results, and a survey of the subject in general.

* * * *

London Transport Report

THE sixth annual report and accounts of the London Passenger Transport Board covers the year ended June 30, 1939, which was an unfortunate one for the board. Although there was an increase in traffic, the rate of growth continued to decline and the expenses incurred in its operation continued to advance. The expenses of the main-line railway companies chargeable to the pool also increased, and their passenger takings, which in previous years had consistently expanded, showed a small decrease, so that the sum which the board received from the pool was appreciably less than in the previous year. As a result, the rate of interest paid on London Transport "C" stock was $1\frac{1}{2}$ per cent. compared with 4 per cent. in the previous year. During the year sums amounting to £10,761,306 were spent on capital works. Of this amount £7,983,939 relates to the new works programme instituted in 1935 under agreement with the Treasury and financed out of loans from the London Electric Transport Finance Corporation Limited. Of the balance, £1,232,343 represents the conversion of trams to trolley-buses in North London, and £719,000 represents the replacement of rolling stock for the Metropolitan and District Lines. Total capital expenditure incurred by the board in the six years since its establishment on July 1, 1933, other than considerations paid for transferred or acquired undertakings, now amounts to £30,790,515. The

estimated further capital expenditure authorised by the board at June 30, 1939, amounted approximately to £15,400,000. This expenditure and the agreement with the Treasury are now subject to close review with the Ministry of Transport because of the outbreak of war. It is hoped, with only small delay, to conclude those works in the programme which are substantially on the way to completion, or which are essential to the convenience and safety of the existing works; but works upon which either little or no work has been done will necessarily be suspended during the war to release labour, plant, and material for other work of national importance.

Dealing with the general progress of new works, the report explains that the tube line from Baker Street to Finchley Road is now approaching completion, and Bakerloo Line trains will, it is expected, be projected to Stanmore next month. There will be two new stations at Swiss Cottage and Acacia Road (to be called St. Johns Wood). Harrow-on-the-Hill station has been reconstructed and track relaying at this point is nearing completion. On the Bakerloo Line work is progressing satisfactorily on the lengthening of all platforms to accommodate longer trains. A large part of the extensions on the east and the west of the Central Line will be ready for use in the summer of 1940. It is hoped to extend the Central Line trains to Ruislip by that time. The extension of the Northern Line from Highgate to East Finchley was opened on July 3, 1939. The rest of the programme of works in the Northern area is being re-examined in the light of current circumstances, but it is hoped to make quickly some extension of service beyond East Finchley. During the year under review 39 route miles of tramway have been converted to trolleybus operation; altogether, 191 miles of tramway have now been converted to trolleybus operation. The total number of passenger journeys originating upon the board's system during the financial year 1938-39 amounted to 3,782,097,853, or 58,442,085 more than a year ago. Of these journeys 472,664,553 or 12 per cent. were by railway, 2,222,695,228 or 59 per cent. by buses and coaches, 516,133,450 or 14 per cent. by trams, and 570,604,622 or 15 per cent. by trolleybuses. In the year 1937-38 the percentages were 13 by railway, 58 by buses and coaches, 19 by trams, and 10 by trolleybuses. The total number of passengers covered by the pooling scheme between the board and the main-line railway companies amounted to 4,368,651,629, an increase of 50,672,497, or less than the increase of 58,442,085 passengers secured by the board alone. This aggregate number of passengers represents travel at the rate of 444 journeys per annum

per head of the population served as compared with 441 in the previous year. Receipts from passengers under the pooling scheme are shown in the accompanying table.

Passenger receipts originating on—	1937-38	1938-39
Railways (L.P.T.B., G.W.R., L.M.S.R., L.N.E.R., S.R., and Joint Lines) ..	£ 19,512,895	£ 19,334,582
Buses and coaches (L.P.T.B.) ..	16,236,651	16,550,096
Trams (L.P.T.B.) ..	4,121,299	3,054,777
Trolleybuses (L.P.T.B.) ..	2,249,334	3,518,308
	42,120,179	42,457,763
Average receipt per passenger journey..	2.341d.	2.332d.

The board's share of these receipts, after operation of the pooling scheme, amounted to £30,925,912 in 1938-39, against £30,758,440 in 1937-38, £30,077,161 in 1936-37, £29,532,879 in 1935-36, £28,823,262 in 1934-35, and £27,151,277 in 1933-34. The board's standard proportion (including its interest in Joint Lines) of the pooled receipts is again 62.10364 per cent. To the 1938-39 share of these receipts have to be added goods traffic receipts of £95,554 and miscellaneous traffic receipts of £48,287. General financial results of the board's operations are shown in the following table:—

	1937-38	1938-39
Capital expenditure	£ 131,281,061	£ 142,042,367
Total traffic receipts	30,923,828	31,069,753
Working expenses	24,923,256	25,140,163
Provision for renewal	2,425,000	2,570,000
Net traffic receipts	3,575,572	3,359,590
Other receipts	1,654,246	1,600,967
Miscellaneous charges	35,216*	191,235
Net revenue	5,265,034	4,769,322
Transfer from "C" stock interest fund ..	28,344	26,465
Interest on London Transport Stocks other than "C"	4,080,447	4,080,447
"C" stock interest	1,027,952	385,482
Other appropriations	184,979	329,858

* After crediting £230,000 provisions for income tax in previous years not now required.

Interest paid on "C" stock was $1\frac{1}{2}$ per cent. for the year under review, against 4 per cent. for the previous year, and $4\frac{1}{4}$ per cent. for 1936-37. Among "other appropriations" in 1938-39 are included £25,646 to "C" stock interest fund, £218,403 interest, &c., to the London Electric Transport Finance Corporation Limited, and £73,388 in respect of guarantee of interest on Central London (new) guaranteed assented stock. The operating ratio for 1938-39 (excluding provision for renewal) was 76.9 per cent. against 76.4 per cent. in the preceding year.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Transport Services and the War

Railway Research Service,
4, Cowley Street, S.W.1, October 23
TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I feel I must let you know at once how extremely valuable the series of articles entitled "Transport Services and the War" have been to me, and I trust they will be continued.

It is remarkable to me that THE RAILWAY GAZETTE should appear to have obtained information which is not available from other sources, especially at such times as the present, and I think you and your organisation ought to be highly felicitated on this excellent achievement for which I and many others must be very grateful.

Yours sincerely,

C. E. R. SHERRINGTON,

Secretary

The "Crawley Express"

London, S.W.
October 23
TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It appears from the new Southern Railway timetable that Three Bridges is honoured by having the fastest train in Great Britain, in the "Crawley Express" (so-called solely because it is the only fast train that stops at Crawley), which covers the 19.0 miles from Three Bridges to Croydon in 21 min., 54.3 m.p.h. This is an electric 12-coach restaurant car train which leaves Bognor at 7.5 a.m.

Yours faithfully,

TROIS PONTS

[It may be of interest to record that second place appears to be taken by the L.M.S.R. with a 53.5 m.p.h. run by the 13.0 a.m. from St. Pancras over the 19.6 miles from Luton to Bedford, covered in 22 min.—Ed. R.G.]

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

NEW SOUTH WALES

Railways Absorb State Tourist Section

An important development announced in the report of the Commissioner for the year ended June 30, 1938, was the taking over by the Railway Department of the tourist activities of the State. Unfortunately, shortly after the close of that financial year, the Chalet at Charlotte Pass in the Southern Alps was [like similar winter sports resorts in Victoria, as already mentioned in these columns—Ed., R.G.] destroyed by fire. As this was one of the principal assets in the Tourist Section it was a severe blow to the various ski clubs and to winter sports enthusiasts.

The New Chalet at Charlotte Pass

In the circumstances it was decided to reconstruct the building immediately, and by intensive efforts an up-to-date chalet, capable of accommodating 100 guests, was completed in time for the activities of the following season, this last June.

The new chalet is a two-storey structure 150 ft. in length and is founded upon granite quarried on the site. Externally the walls are finished in terra cotta and grey diamond-pattern fibro cement sheets; these colours are recognised as being a most harmonious combination when a country-side is covered with snow. A striking feature of the architecture is the central circular tower constructed of granite. Beneath their exterior sheeting (which is fire-resistant) the walls of the building are sarked and braced in different directions to withstand cold and wind pressures.

Internally the amenities include an exhaust air-ventilating system, heating, electric light, hot and cold water, and sewerage facilities. In the old chalet the bedroom arrangement provided for dormitories accommodating a large number of persons together, permitting of little privacy, but in the new building there are several bedrooms with only two beds in each, and in the dormitory-class of bedroom the maximum number of persons accommodated together is six. All bedrooms have bathing and sanitary conveniences and are constructed with sound-proofed and fire-retardant materials. Lounge, dining, and drawing rooms are incorporated in the building. A ski-room, with elaborate drying annexes serviced by coke-fired boilers, has been built in the basement.

The Ski-Lift

Adjacent to the main building is the ski-lift, which was recently installed to convey skiers to the summits of the neighbouring ridges and so obviate

the heavy toil involved in the ascent. This lift is of a particularly efficient type and compares favourably with anything of like nature in the world.

Another instance of the self-contained nature of the chalet is to be seen in the power house. Often the buildings are entirely cut off from the outside world and the maintenance of efficient electrical facilities is all-important. The power station plant consists of three 15 kW, 415-v., 3-phase diesel-driven units, capable of meeting not only the lighting demands but the needs of the refrigerator plant, the ventilating fans, and the hot water pump. The area immediately surrounding the chalet is illuminated at night by latest-type mercury discharge lamps. [Illustrations of the chalet and ski-lift will be found on page 553.—Ed., R.G.]

CANADA

C.N.R. Vice-President's Government Appointment

At the nominal salary of \$1 a year, Mr. Robert C. Vaughan, Vice-President of the Canadian National Railways, has been appointed Vice-Chairman and Director-General of Purchases of the newly-formed War Supply Board of Canada.* The Prime Minister, Mr. Mackenzie King, in announcing the appointment, expressed appreciation of the contribution which Mr. Vaughan is making in connection with this vitally important phase of war activities. He recalled that when the Act setting up the Defence Purchasing Board, which was a peace-time measure, was proclaimed a few weeks ago, Mr. Vaughan was asked by the Government to assume the chairmanship, which he agreed to do for a period of three months until the organisation was in working shape, and the board of directors of the Canadian National Railways, at the request of the Government, agreed to loan Mr. Vaughan's services for that period.

The whole situation changed, however, on the declaration of war, requiring the setting up of a body with a much wider field of activities than day-to-day purchases. Accordingly, a new board had been authorised with the responsibility of surveying, organising, and mobilising the resources and industries available to Canada for the prosecution of the war. Mr. Wallace R. Campbell, President of the Ford Motor Company of Canada, had agreed to accept the chairmanship at a salary of \$1 a year, and Mr. Vaughan accepted the vice-chairmanship. Although the transport situation brought about by the war made it highly desirable for

* This appointment was briefly announced on page 465 in our issue of October 6 last—Ed., R.G.]

Mr. Vaughan to return to the railway at the earliest possible date, the Government had felt justified in pressing Mr. Vaughan to continue to give his services and wide experience to the new board during the early stages at least. In these circumstances, Mr. Vaughan has consented to carry on as Vice-Chairman and Director-General of Purchases of the new organisation for a sufficient period in any case to enable it to function fully and effectively.

UNITED STATES

Pennsylvania Coaches to be Modernised

To supplement the three new streamlined and 15 modernised passenger cars authorised by the directors of the Pennsylvania Railroad on September 13, that company now announces that 85 all-steel coaches are to have their interiors entirely modernised, and be fully air-conditioned on the electro-mechanical system; also, to ensure smooth riding, tight-lock couplers and roller bearing axleboxes are to be fitted. Of the 85 cars 25 will be fitted out as long-distance overnight coaches, with individually adjustable reclining and revolving seats for 56 passenger; their exteriors will be streamlined. They are to have separate lounges for men and women, including roomy lavatory facilities. The remaining 60 cars will be equipped as day-service through coaches, with high-backed partly-divided seats for 84 passengers.

Preparing for Traffic Increase

At a recent meeting in Washington of the Association of American Railroads, it was announced that some 46,000 new freight cars would be placed in service or ordered by American railways during 1939. This figure includes 25,000 which are to be purchased additionally, according to programme, and 21,260 already ordered or placed in traffic during the first nine months of this year. Locomotives and cars that have not been required for traffic offering hitherto, are, moreover, to be repaired immediately to meet the demands for increased movements now expected in the near future.

Benefits of Improved Traffic Methods

It is significant of the improved methods of operation since 1923, that American railways handled in 1929 approximately 19 per cent. more traffic than in 1918 with no increase in the number of cars. It is also estimated that the traffic handled in 1929 could now be moved with 350,000 fewer cars than were used in that year.

Factors partly responsible for this satisfactory state of affairs include improved cars, locomotives, tracks, bridges, signals, yard layouts, workshops, and facilities of all kinds. It is stated that about nine billion dollars have been spent upon these improvements, resulting in better service, higher efficiency, and greater economy. Improved methods of operation, made possible by

the use of this improved equipment and by new methods of controlling the flow of traffic, have, however, become effective as a result of better understanding and organised and active co-operation between traders and railways.

New Diesel-electric 400 Flyer

Until September 24, the Chicago & North Western 6½-hr. flyer, 400, running between Chicago and the Twin Cities, was worked as a steam train. Since then, however, a nine-car diesel-electric set has been introduced; it was built by the Pullman-Standard Car Manufacturing Company. The make-up is as follows: baggage-tavern car seating 34 passengers, four coaches each seating 52 in addition to those in the smoking room, 56-seater dining car, two 29-seater parlour cars, and a parlour-observation car seating 26. The locomotive is double-ended with dual engine unit consisting of two separate 2,000-h.p. diesel-electric sets.

S.P.R.R. New Carriage Yard at Los Angeles

In conjunction with the recently-opened union passenger terminal, the Southern Pacific Railroad has now completed a new carriage yard at Los Angeles, which embodies many special features in connection with cleaning and air-conditioning maintenance. The general layout is shown in the accompanying diagram, reproduced from the *Railway Age*, and the yard includes new commissary, Pullman, battery, and workshop buildings, as well as complete installations of compressed air, steam, electricity and water mains throughout the yard.

The car servicing tracks vary from 1,350 ft. to 2,200 ft. in length, and are spaced at 22-ft. centres, except in one instance which is 30-ft.; the permanent way is of 90-lb. section in the grid straights, but the approaches and lead-

in lines are of 110-lb. section. The air, water, and steam mains are carried overhead along the centres of the alternate paved cleaning platforms, and are supported on rail uprights. The steam, which is used for air-conditioning, car and building heating, and for testing steam lines, is supplied by three 200-h.p. water-tube and two 110-h.p. horizontal return tubular boilers.

The electric power service consists of a d.c. supply for battery charging, and 230-V. three-phase, 60-cycle current for stand-by power service for Pullman mechanically air-conditioned cars, and for working air and gas compressors, refrigerators, and workshop motors; these mains also are overhead. The yard is illuminated by 16 1,000-W. floodlights on 12 75-ft. wooden standards.

The commissary building houses offices for the clerical staff employed in connection with the refreshment service, and is also used as a store and for preparing the supplies required for the dining cars.

ITALY

Five New Stations in Rome

In addition to the main central terminus, Termini, which, as previously announced in these columns, is to be rebuilt completely 1,500 ft. further back from its present site, three other stations, Tiburtina, Ostiense, and Magliana are to be rebuilt on their present sites. An entirely new station is also to be constructed to handle the freight traffic of the capital; it will be known as *Merci del Littorio*. The completion of these works is timed to synchronise with the opening of the World Exhibition in April, 1942.

New Central Station

Work on the Termini station has already begun, and will be carried out in

carefully-planned successive stages so as to ensure freedom from interruption of traffic in the present station. Unlike the latter, the new station will be entirely for passenger traffic, which will be handled on 24 platform roads flanked by wide covered platforms; the maximum traffic that, it is estimated, this new station will be able to deal with is 200,000 passengers daily. The new station building will be seven-storied, three below and four above rail level. Some idea of the completeness of the facilities and accommodation that will be provided for the comfort of passengers, may be gathered from the fact that an underground church will be built for their use. For cleaning and servicing all coaching stock using this station, a 42-track carriage yard will be laid out at Prenestina, nearby.

The Other Stations

The Tiburtina station, to the east of the city, will be modernised to cater for overflow passenger traffic from Termini. The Ostiense station, situated towards Ostia and the coast, will be enlarged and remodelled to handle the heavy exhibition traffic anticipated. The same remarks apply to the Magliana station which is even nearer the exhibition. The new Littoria goods station is to occupy the site of the present airport, which is to be moved across the city to the vicinity of Magliana and the exhibition.

Progress of the New Underground Line

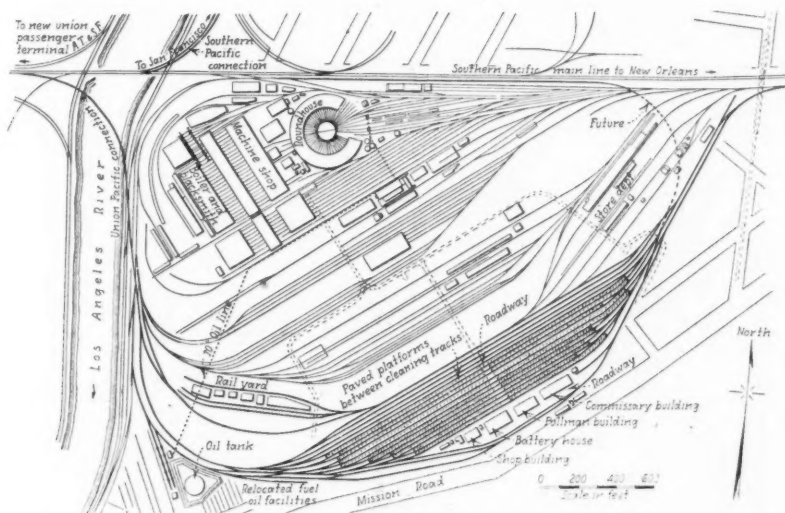
The construction of the new eight-mile double-track underground line, to connect Termini with the centre of the exhibition grounds, is already well in hand, but the work is proving difficult due to the necessity for draining off Rome's lost waters, encountered *en route*.

SPAIN

The Railway "Divisions"

Prior to April, 1931, *i.e.*, before the advent of the Republic, the Government inspection of railways in Spain was effected through the so-called Technical and Administrative Railway Divisions, of which there were four, each controlling roughly a quarter of the national system. They were replaced, during the Republic, by the *Comisarias*, but under a decree published in the *Madrid Boletín Oficial* of October 6, the "divisions" are re-established in their old form, except that they are now to be five in number. At the same time the reorganisation is ordered of the Department of Railway Studies and Construction, which is also to have five sectional headquarters.

Control of the Railway Divisions over private Railways is very detailed, and includes, inspection for safety and even regarding tariffs and claims, by resident inspectors, usually one technical and one administrative for each district of about 100 km.



Plan of new carriage yard at Los Angeles, Southern Pacific Railroad, showing its position relative to the workshops

GENERAL UTILITY LOCOMOTIVES

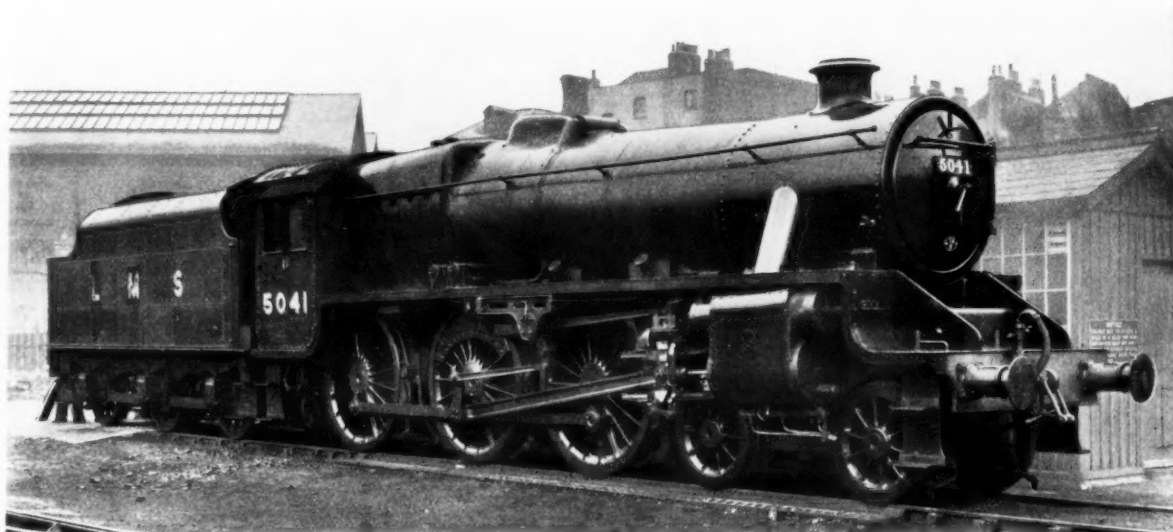
The L.M.S.R. Class "5" 4-6-0 mixed traffic engines, on account of their operating economy and wide range of usefulness, conform very closely to this designation

THE fact is well established that large railway systems, operating extensive and widely diversified classes of traffic must, of necessity, have at their disposal a sufficiency of locomotives conforming to the "general utility," or as it is usually termed mixed traffic category, in order that undue multiplication of engine types may be avoided and the economies attending standardised workings realised.

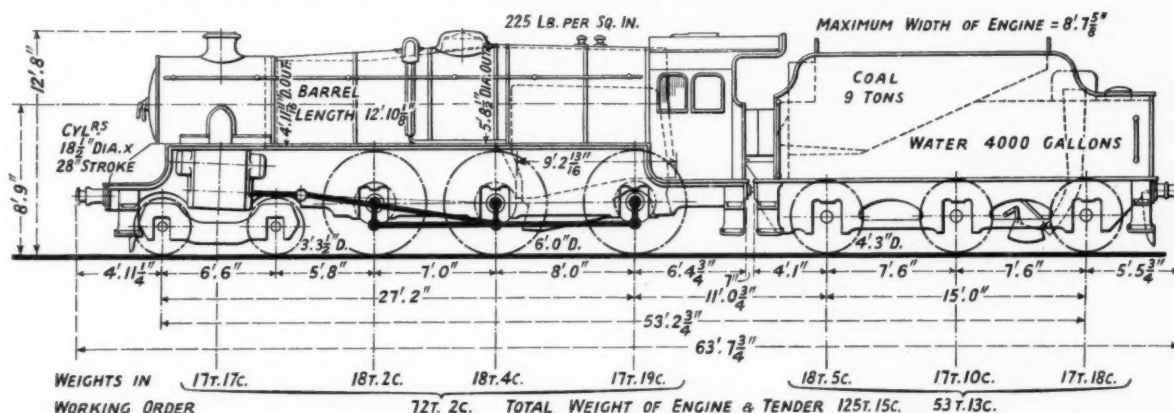
The task of designing a locomotive of this character entails the most careful selection of dimensions, and due regard must be paid to factors which do not arise in such an acute form when planning engines for a specified and more clearly defined form of duty consisting almost entirely of a unified type of service. The wide difference between an express passenger and a heavy "coal" engine, for instance, has in large measure to be bridged by the mixed traffic class, and the latter, to achieve its purpose,

must effectively further the policy of extended engine workings by making it possible to work successively, with the same engine, trains of the fast passenger, fitted freight and even those of the loose coupled type. Mixed traffic engines have, of course, been designed since the earliest times, but the factor that is new in the most recent designs is the increased range due to the ability of the modern engine to run at high piston speeds. This in turn is attributable to the improvements which have been made in valve gear and steamport design.

The subject is of considerable interest and importance to the operating departments of railways and of no less moment to the locomotive department on which latter rests the responsibility for the provision and maintenance of adequate and suitable engine power. In the realisation of this fact and to meet the oft reiterated desire of readers for information on the matter, we have selected for



Two-cylinder 4-6-0 Class "5" mixed traffic locomotive, London Midland & Scottish Railway



Overall dimensions and weight distribution diagram, Class "5" locomotives, L.M.S.R.

description and comment what we consider to be one of the best examples of engine types conforming to the general utility classification, viz., the modern Class "5" 4-6-0 mixed traffic locomotive of the London Midland & Scottish Railway. In the pursuance of this object we have had the valuable co-operation of Mr. W. A. Stanier, the company's Chief Mechanical Engineer, who placed at our disposal the data and other information upon which the following article is based.

In introducing the Class "5" engines, in 1935, since when nearly 500 of them have been built, the purpose in view was (a) to provide an engine in replacement of the L.N.W.R. 4-6-0 "Prince of Wales" class, which would give increased capacity with reduced fuel and maintenance costs, and (b) to have at disposal an engine which by reason of its low coupled-axle weight of 18 tons and restricted overall dimensions (height to top of chimney 12 ft. 8 in. and width over cylinders 8 ft. 7½ in.) would be capable of running over practically the whole of the L.M.S.R. system. As one of the requirements was that the engine should be available for express passenger work, a coupled wheel diameter of 6 ft. was selected, or somewhat larger than the diameter generally used for mixed traffic locomotives. Two outside cylinders were adopted in order to eliminate the crank axle and at the same time afford the highest degree of simplicity and accessibility. The tractive effort of 25,455 lb. is very similar to that of the older mixed traffic classes, but it was kept in mind that the larger wheel could be expected to maintain greater available tractive effort in the higher speed ranges. Otherwise the Class "5" mixed traffic locomotive conforms in all its details to the new standard designs introduced during the past few years on the L.M.S.R.

The principal particulars of the locomotives are as follow :—

Cylinders, (2), dia.	18½ in.
" stroke	28 "
Piston valves, dia.	10 "
" max. travel	6½ "
Wheels, coupled, dia.	6 ft. 0 in.
" bogie, "	3 ft. 3½ in.
" tender, "	4 ft. 3 in.
Wheelbase, coupled	15 ft. 0 in.
" total of engine	27 ft. 2 in.
" total of engine and tender	53 ft. 2½ in.
Length over buffers	63 ft. 7½ in.
Boiler, height of centre from rail	8 ft. 9 in.
" smokebox end, outside dia.	4 ft. 11½ in.
" firebox	5 ft. 8½ in.
Superheater tubes :	
1½ in. dia. outside × 11 s.w.g. (elements)	28*
Flue tubes :	
5½ in. dia. outside × 7 s.w.g. (number)	28*
Small tubes :	
1½ in. dia. outside × 11 s.w.g. (number)	151*
Evaporative heating surface, tubes	1,479 sq. ft.*
" " " firebox	171 "
" " " total	1,650 "
Superheating surface	359 "
Combined total	2,009 "
Grate area	28.65 sq. ft.
Boiler pressure, per sq. in.	225 lb.
Tractive effort (at 85 per cent. b.p.)	25,455 lb.
Weight of engine, in working order	72 tons 2 cwt.
Water capacity of tender	4,000 gal.
Coal	9 tons
Weight of tender, full	53 tons 13 cwt.
" engine and tender in working order	125 tons 15 cwt.
Adhesion factor	4.77

*These figures refer to the latest additions to the Class "5" engines. Corresponding particulars for those built previously, and constituting the majority are as follow: Superheater tube tubes 24, small tubes 159. Evaporative heating surface, tubes 1,460 sq. ft., firebox, 171.3 sq. ft., total 1,631.3 sq. ft., superheating surface 307.0 sq. ft. Combined total 1,938.3 sq. ft.

The engines have been built as follow :—

Nos.		Date built
5000-5019	built at Crewe works	1935
5020-5069	" by Vulcan Foundry	1934-1935
5070-5074	" at Crewe works	1935
5075-5124	" by Vulcan Foundry	1935
5125-5224	" " Armstrong Whitworth	1935
5225-5451	" " " "	1936-1937
5452-5471	" at Crewe works	1938

Engine Working and Tests

The Class "5" locomotives are to be found in service all over the L.M.S. system, regular workings taking them as far south as Bournemouth and as far north as Wick and Thurso. Apart from the wide scope of their duties in England they have been found particularly useful on some of the mountainous main lines of Scotland, and today most of the principal passenger trains between Glasgow and Inverness and Glasgow and Oban are worked by them. Dynamometer car tests with fitted freight and express passenger trains have shown that the engines possess considerable elasticity in their capabilities of service, and, in the particulars given below, the train loads and methods of working the engines are typical for each class of train.

Tests were carried out with engine No. 5079 working the following trains :—

Fitted Freight : 7.30 p.m. F.F.¹ Sheffield-Carlisle, 45 vans, car and brake, load 562 tons; and 4.0 p.m. F.F.² Carlisle-Sheffield, 50 vans, car and brake, load 610 tons.

Express Passenger : 10.0 a.m. St. Pancras-Leeds, and 8.0 a.m. Leeds-St. Pancras, each including dynamometer car, loading to 310 tons.

The following tables give the average cut-off when working each type of train. Full regulator opening was used except on the easier gradients when working at an early point of cut-off. The heaviest working of the engine occurred on the F.F.² train between Appleby and Ais Gill (largely uphill at about 1 in 100), when the drawbar pull exceeded 7 tons. An analysis of the dynamometer car chart showed that in one instance a cylinder tractive effort of 83.4 per cent. of the maximum (11.36 tons) was developed at 17.2 m.p.h. with a cut off of 60 per cent., the maximum being calculated at 85 per cent. boiler pressure.

F.F. ¹ Sheffield-Carlisle	Average cut-off, per cent.	F.F. ² Carlisle-Sheffield	Average cut-off, per cent.
Load 562 tons		Load 610 tons	
Average speed 31.2 m.p.h.		Average speed 31.9 m.p.h.	
Masboro'-Cudworth . .	37	Carlisle-Appleby . .	30-35
Cudworth-Stourton Jc. .	30-45	Appleby-Ais Gill . .	45-60
Stourton Jc.-Hellifield .	30	Ais Gill-Dent	30
Hellifield-Blea Moor . .	40-45	Skipton-Stourton Jc. .	18-28
Blea Moor-Ais Gill . .	35-45	Stourton Jc.-Norman- ton	40-45
Ais Gill-Carlisle	13	Cudworth-Masboro' . .	18
8.0 a.m. Leeds-St. Pancras	Average cut off, per cent.	10.0 a.m. St. Pancras-Leeds	Average cut off, per cent.
Load 310 tons		Load 310 tons	
Average speed 48.1 m.p.h.		Average speed 35.7 m.p.h.	
Leeds-Sheffield	20-30	St. Pancras-Bedford . .	28-20
Sheffield-Dore and Totley	35	Bedford-Market Har- boro'	27-20
Trent-Kibworth	20-25	Trent-Clay Cross . . .	27-23
Desboro-St. Albans . .	25	Clay Cross-Leeds . . .	23-20

Forward Gear

Notch	Travel in.	Lead (in.)		Port Opening (in.)		Cut Off Per cent.		Expansion Per cent.		Release Per cent.		Angle of Release		Compression Per cent.		Exhaust Travel (in.)		Slip of Dis.								
		F.P.	B.P.	Diff.	F.P.	B.P.	Diff.	F.P.	B.P.	Diff.	F.P.	B.P.	Diff.	F.P.	B.P.	Diff.	F.P.		B.P.	Diff.						
Full	6-4765	0-2735	0-2265	0-047	1-6718	1-8047	0-1329	76-0	72-5	3-5	15-75	17-25	1-5	91-75	89-75	2-0	145-0°	144-5°	0-5	90-75	92-5	1-75	3-3672	3-2343	0-1329	0-718
70	5-8906	0-2735	0-2265	0-047	1-3906	1-5781	0-1875	71-0	67-5	3-5	22-25	23-75	1-5	86-0	83-5	2-5	134-25°	134-25°	0-5	85-0	87-5	2-5	2-6466	2-5468	0-0938	0-545
60	5-3067	0-2735	0-2265	0-047	1-1094	1-2969	0-1875	66-0	62-5	3-5	29-25	30-75	1-5	81-0	78-5	2-5	128-0°	128-0°	0-5	80-0	82-5	2-5	2-4616	2-3618	0-0938	0-545
50	4-5468	0-2735	0-2265	0-047	0-7987	0-9862	0-0468	50-25	49-5	0-75	31-75	29-75	2-0	82-0	79-25	2-75	128-0°	128-0°	0-5	81-25	78-0	3-0	2-3583	2-3125	0-0468	0-336
40	4-1874	0-2735	0-2265	0-047	0-5937	0-7891	0-0468	40-5	40-5	0-0	37-0	34-5	2-5	77-5	75-0	2-5	121-25°	121-25°	0-75	77-25	75-0	2-25	2-1562	2-1562	0-0	0-289
30	3-9064	0-2735	0-2265	0-047	0-4532	0-6537	0-0468	30-5	30-5	0-0	41-5	39-5	2-0	72-0	70-0	2-0	114-0°	116-0°	0-75	72-5	70-0	2-5	2-0157	2-0157	0-0	0-187
20	3-6874	0-2735	0-2265	0-047	0-3515	0-5559	0-0468	20-25	20-25	0-0	44-25	42-75	1-5	64-5	63-0	1-5	104-5°	107-75°	2-25	66-0	67-75	1-75	1-8894	1-9140	0-0156	0-187
10	3-5244	0-2735	0-2265	0-047	0-2812	0-4822	0-0399	10-75	10-75	0-0	45-75	43-0	2-0	53-0	51-5	1-5	90-0°	90-0°	4-0	50-0	51-5	1-5	1-7880	1-8140	0-0156	0-187
Mid	3-5	0-2735	0-2265	0-047	0-2735	0-2265	0-047	8-0	6-75	1-25	40-25	41-25	0-0	48-25	47-75	0-5	85-25°	85-25°	4-75	51-25	51-75	0-5	1-7880	1-8860	0-047	0-025

Backward Gear

Notch	Travel in.		Lead (in.)		Port Opening (in.)		Cut Off Per cent.		Expansion Per cent.		Release Per cent.		Angle of Release		Compression, Per cent.		Exhaust Travel (in.)		Slip of Die
	Per cent.	Angle	F.P.	B.P.	Diff.	F.P.	B.P.	Diff.	F.P.	B.P.	Diff.	F.P.	B.P.	Diff.	F.P.	B.P.	Diff.	F.P.	
Full	6-3905	271°	0-2735	0-2265	0-047	1-5937	1-7968	0-2031	0-047	1-5937	1-7968	0-2031	145-25°	145-25°	91-25	92-75	3-3583	3-1562	0-2031
70	5-8125	231°	0-2735	0-2265	0-047	1-3125	1-5156	0-2031	0-047	1-3125	1-5156	0-2031	141-75°	141-75°	89-75	91-25	3-0625	2-8750	0-1875
50	5-0234	181°	0-2735	0-2265	0-047	0-9531	1-1562	0-2031	0-047	0-9531	1-1562	0-2031	135-25°	135-25°	86-0	88-0	2-6328	2-5156	0-1172
40	4-5078	141°	0-2735	0-2265	0-047	0-7187	0-9218	0-2031	0-047	0-7187	0-9218	0-2031	128-5°	128-5°	82-25	84-25	2-3516	2-2812	0-0704
30	4-1718	111°	0-2735	0-2265	0-047	0-5781	0-7812	0-2031	0-047	0-5781	0-7812	0-2031	123-5°	123-5°	78-25	80-25	2-1562	2-1456	0-0106
20	3-9062	81°	0-2735	0-2265	0-047	0-4531	0-6562	0-2031	0-047	0-4531	0-6562	0-2031	115-25°	115-25°	68-25	69-25	1-8884	1-9062	0-0181
10	3-531	11°	0-2735	0-2265	0-047	0-2812	0-4843	0-2031	0-047	0-2812	0-4843	0-2031	92-25°	92-25°	57-0	57-25	1-8125	1-8437	0-0312
Mid	3-5	—	0-2735	0-2265	0-047	0-2735	0-2265	0-047	0-2735	0-2265	0-047	86-0°	86-0°	49-0	51-5	1-7880	1-8360	0-047	

Table giving details of valve events in forward and backward gear, 4-6-0 Class "5" locomotives, L.M.S.R.

The coal and water consumption figures were as follow :—

	Fitted Freight Services.	Express Passenger Services.
Coal—		
Lb. per mile	55.7	34.7
Lb. per d.b.h.p. hr.	3.13	3.38
Water—		
Gal. per mile	41.5	32.8
Lb. per d.b.h.p. hr.	23.3	24.3
Evaporation	7.44	7.49

Engine Maintenance

While it is not possible to quote actual cost figures, these engines, owing to the simplicity and robustness of their design, have proved very free from casualties and inexpensive in maintenance. The average mileage obtained up to service repairs is 58,000, and 145,000 between general repairs. As an indication of their freedom from trouble on the road it can be stated that in this class of nearly 500 engines there have, in the last two years, been only 54 cases of heated axleboxes, which represents a probability of a hot axlebox on any given engine occurring only once in 15 years. Hot big ends also, which in days gone by used to be such a troublesome operating feature, may be said, in a modern design of this nature, to have practically disappeared, there having been only 18 cases on these engines in the last two years.

Leading Features of the Design

The boiler is designed with taper barrel and has a Belpaire firebox with sloping throatplate. Mounted upon it are two Ross pattern safety valves 2½ in. diameter, which blow off at a boiler pressure of 225 lb. per sq. in. With a view to reducing weight, 2 per cent. nickel steel plates have been used for all plates with the exception of the smokebox tubeplate, dome and its cover; the inner firebox is of copper. The feed water is supplied through top feed valves on the second barrel plate with water distributing trays. The main regulator is of the grid type, and is situated in the dome on the second barrel plate immediately behind the feed water casting. A Davies & Metcalfe exhaust injector is fitted on the right-hand side and a Gresham & Craven live steam injector on the left-hand side of the engine respectively. The cylinders are fitted with 10-in. dia. piston valves, which have a travel of 6½ in., lap 1½ in., and exhaust clearance ⅛ in. They are actuated by Walschaerts gear. Particulars of the valve events are given in the accompanying tables, for both forward and backward gear. A twelve-feed mechanical lubricator supplies lubrication to the following points: Valve spindle and piston packing, cylinder barrel, top and bottom, and front and back ends of the steamchest; the latter feeds are passed through an atomiser of the company's standard design.

The coupling and connecting rods are of high-tensile, fine-grain steel, and in the latest engines needle and ball bearings have been adopted for the various motion pin joints. The wheel centres are steel castings with triangular section rims and retaining rings of Gibson type for fixing the tyres. The balance weights for the coupled wheels are built up of steel plates on both sides of the spokes and riveted, the requisite weight being provided by filling in between the plates with lead; 50 per cent. of the reciprocating parts are balanced. For the coupled wheels, steel axleboxes are used, having pressed-in bronze alloy bearings 8½ in. dia. by 11 in. journal, with a white-metal crown. A



[Photo.]

No. 5093 on southbound Devonian express near Standish junction

[W. Vaughan-Jenkins]



[Photo.]

No. 5382 on Edge Hill—Willesden loose-coupled freight train near Liverpool

[Rev. E. Treacy]



[Photo.]

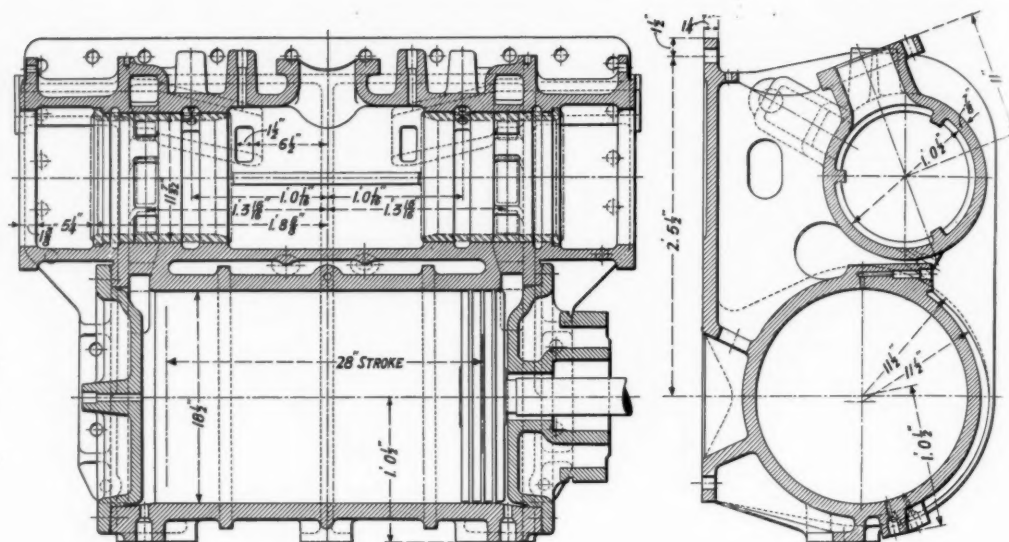
No. 5300 on fast schedule fitted freight train near Coppull

[Rev. E. Treacy]

L.M.S.R. CLASS "5" MIXED TRAFFIC LOCOMOTIVES

The above illustrations indicate the general utility of the design

Right: Longitudinal and cross sections through cylinder and steamchest, 4-6-0 Class "5" locomotives, L.M.S.R.

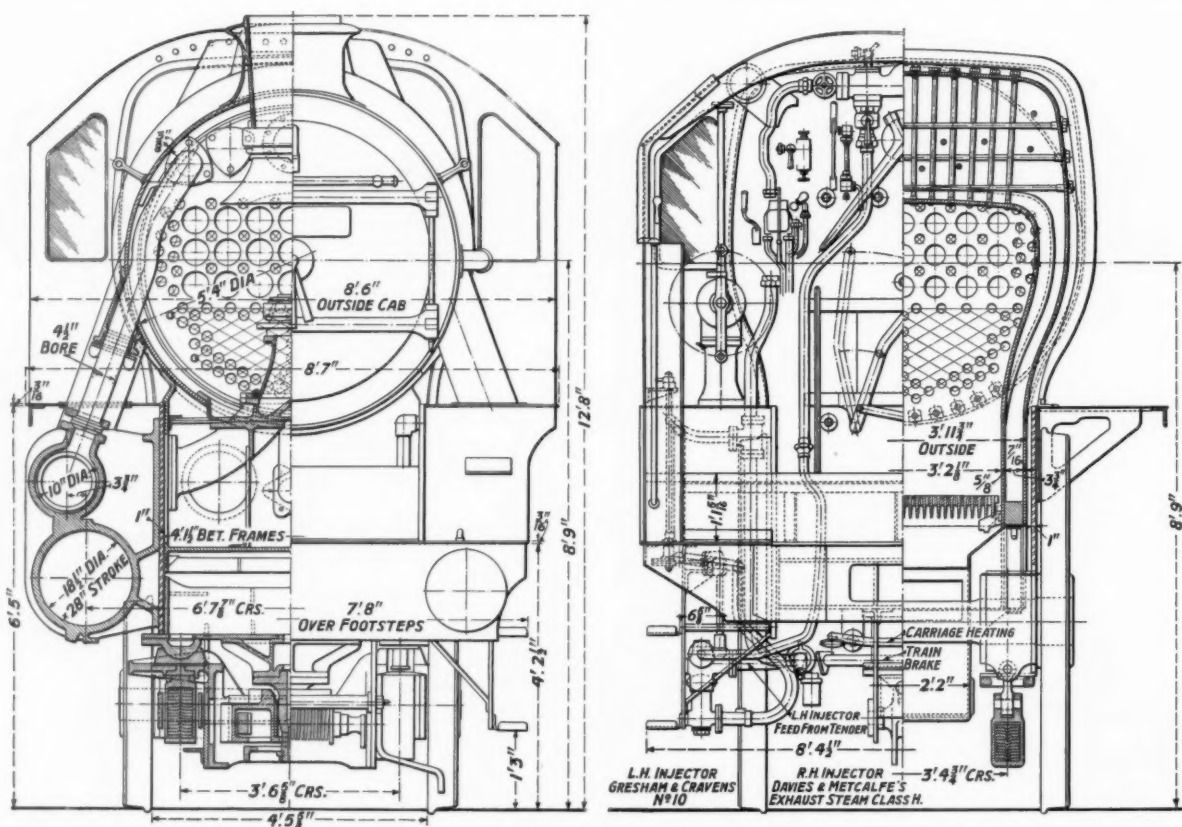


thorough distribution of oil to the horizontal centre of the journal is fed from a groove at the back of the bearing through a series of $\frac{1}{8}$ -in. dia. holes. All axleboxes are arranged so that the oil pads can be examined by sliding out the underkeep while the axlebox is in position. Each of the axleboxes is provided with a dust shield carried on the inside face of the box.

A separate eight-feed mechanical lubricator supplies

the coupled axleboxes, each with an independent oil feed to the top of the box, and a standard back-pressure valve and flexible oilpipe connection.

The four-wheel bogie is of the L.M.S.R. type in which the weight is taken through side bolsters; bogie check spring gear is provided to ensure smooth riding. All the laminated bearing springs for engine and tender are made of silico-manganese steel, and the plates are of ribbed



Left: Front elevation and cross section through smokebox and cylinder. Right: Back elevation at cab and cross section through firebox

section having wedge and wedge key type fixing in the buckle. The spring links are of the screwed adjustable type.

The cab is commodious, with the rear window on each side of the footplate arranged for sliding, and in addition small hinged glass wind screens act as draught protectors for the enginemmen when looking out. Articulated brake blocks are fitted to all the coupled wheels, and are coupled up through crossbeams and centre pullrods to the steam brake cylinder operated by the driver's vacuum brake valve. A steam manifold with main shut-off valve is mounted on the top of firebox doorplate in the cab, and to this are attached the necessary valves for the ejector and steam brake, injectors, carriage warming, whistle, and the pressure gauge. Two sets of water gauges are fitted on each side of the regulator rod stuffing box and quadrant; the top and bottom cocks are actuated simultaneously through a link coupling, and are operated by a handle fixed to the top cock.

A sand gun is mounted immediately above the sliding firehole door, and is intended to be used about every 75 miles to keep the tubes clear; this automatically receives its charges by suction from a sand hopper (capacity five charges) fastened to the front cab panel plate on the fireman's side. In connection with the use of softened water, a continuous blowdown valve is mounted on the fireman's side. These several mountings are of the company's standard design.

The tender is of the six-wheel type and carries 4,000 gallons of water and 9 tons of coal. The coal bunker has been carefully arranged so that as far as possible the coal will be self-trimming. Both the water pick-up and tender hand-brake handles are arranged vertically (*i.e.*, with shaft axis horizontal), bevelled wheels being provided for transferring the motion to their respective gears. The steam brake can be applied simultaneously with the tender brake on the engine to each of the six tender wheels.

The tender axleboxes are of an outer steel casting, with alloy bearings containing inserts of white metal. For the purpose of removing the alloy bearing without taking the wheels from underneath the tender, a mild steel liner $\frac{7}{8}$ -in. thick is inserted between bearing and outer steel casting, which when removed allows the bearing to be withdrawn. A cast iron spring pad to take the axle load rests on the top of the axlebox (located in position by the spigot on the end of the spring buckle). A cast iron cover on the outside face of the steel casting encloses the axle journal, and a felt pad dust shield rebated into the inner face ensures a clean journal.

The foregoing details relating to the construction and working of the L.M.S.R. Class "5" mixed traffic locomotives serve to show that the design ranks as a highly successful one fulfilling to a large extent the requirements of the general utility type of engine.

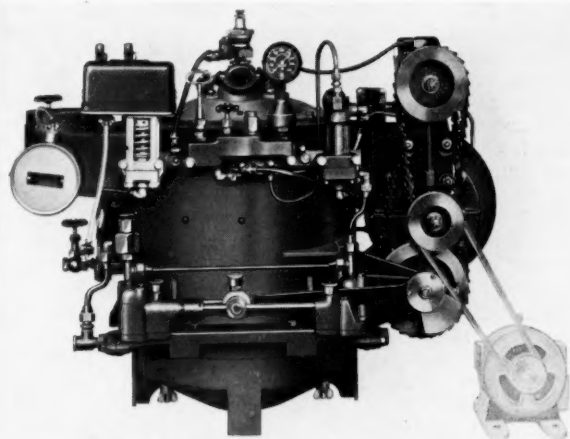
BOILER FOR STEAM OR FLUID HEATING

A compact and efficient generator unit for carriage heating and a variety of other purposes

REFERENCE was made in THE RAILWAY GAZETTE of May 29, 1936, in an article on "Steam Heating of Railway Carriages," to the Vapor system of steam heating for railway vehicles, and an abbreviated description was then given of the apparatus. The Vapor-Clarkson generating unit, an automatic oil-fired steam generator optionally providing hot fluids under pressure, is manufactured and supplied by Gresham & Craven Limited; it is of compact design and adaptable for a wide variety of uses apart from that of railway carriage heating. The installation is completely self-contained and can be driven by an electric motor or internal combustion engine, ample automatic safety controls being provided. The unit shown in the accompanying illustration has a capacity of 300 lb. of steam an hour at pressures up to 200 lb. per sq. in. with optional superheat. Steam generation is instantaneous and full working pressure can be attained in about three minutes.

The Vapor-Clarkson units are constructed with a patented staggered coil assembly properly compensated for expansion and designed to split the combustion gases into narrow fins which flow freely in the opposite direction to the flow of water in the coils, thus ensuring maximum efficiency even beyond their rated capacities. The heat release of over one million B.Th.U. per cu. ft. combustion space enables these generating units actually to deliver an unusual amount of heat units for their size. A single motor operates the feed and fuel pumps, magnet for ignition and blower for the combustion air. Thus the fuel supplied to the oil burner is automatically regulated in relation to the amount of water circulated through the coils and the amount of air delivered for combustion. The operation of the generator is very simple. It is easy to start and stop and in the absence of stand-by losses no running attendance is required, the unit being operated by a switch or push-button.

The generator can be arranged to supply either super-



Vapor-Clarkson oil-fired boiler equipment requiring only $\frac{1}{2}$ h.p. to operate, and producing 300 lb. of steam an hour

heated steam alone for all purposes such as heating of railway vehicles and numerous other requirements, or alternatively to provide high temperature liquid sprays or steam jets for cleaning locomotives, rolling stock, buildings, or any purpose of that kind. The generator is equally adaptable as a portable or stationary unit, and is designed for continuous or fully automatic operation. The fuel used is diesel fuel oil and the capacity is automatically variable from 100-300 lb. per hour of superheated steam at a pressure up to 200 lb. per sq. in., with superheat temperatures adjustable up to 500-600° F. The floor space required is 36 in. by 24 in. excluding the electric motor which, it is pointed out, can be mounted above the unit if desired.

HISTORY OF MERSA MATROUH RAILWAY, EGYPT

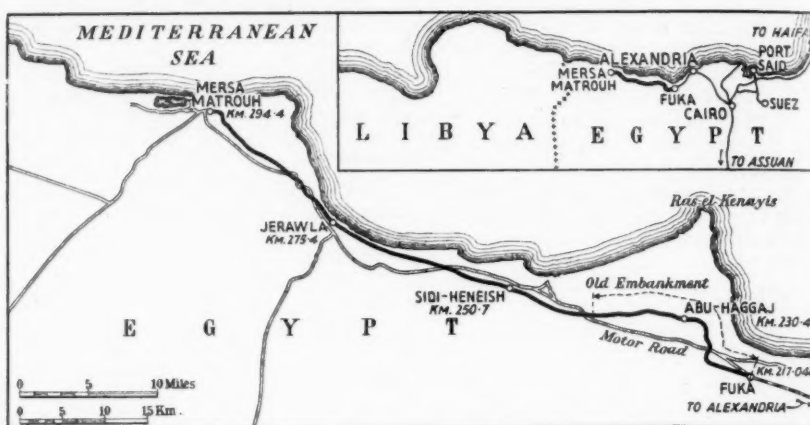
Originally a private venture, this line was at first built to standard gauge only as far as km. 177 from Alexandria, with a metre gauge extension to km. 256

A RAILWAY which since its extension in 1936—as described in THE RAILWAY GAZETTE of July 24 of that year—has been of considerable strategic value is the Alexandria—Mersa Matrouh line in north-western Egypt; the following historical notes upon it are, therefore, of some interest.

Its inception was due to the Khedive Abbas Hilmi, who first built a road linking his vast land holdings in the west to the town of Alexandria. He soon added a narrow gauge railway, and next thought of replacing it by a standard gauge line. This railway was his personal property and was built by military labour, which was sometimes paid small gratuities as its only reward, so that the total cost was small. Not only was the line intended to ensure that the Khedive's land should be worked at a profit, but it was built so as to provide a shorter and quicker route towards the western boundaries of his estates and, incidentally, to Mersa Matrouh. Supervision of the construction work was entrusted to a German, Gustav Kaiser, on completion of which the roadway was abandoned.

The railway originally started from Wardan, opposite the new western harbour, but the zero point was afterwards altered to Hadra, a couple of miles from the main terminus. It circles the town of Alexandria, skirts the northern shore of Lake Mariut—hence its being known as the "Mariut Railway"—and then crosses it on a 4-km. dam which separates the waters of the lake from the salt waters of the Mex marshes. Thereafter the line keeps at no great distance from the coast, which it actually reaches at Alamein, at km. 118. The original western terminus was km. 170, though there is no town or village at that spot. A metre gauge extension was built through Fuka at the km. 225, but this also came to a full stop at a lonely kilometre post, 256 km. from Alexandria; this terminus was still some 60 km. short of Mersa Matrouh.

The traffic offering enabled the line to pay its way, and



Sketch map and plan of the extension, showing position relative to Alexandria and the Libyan frontier, and also the motor road and old embankment

in 1905, for instance, it carried some 500,000 tonnes of freight and about 200,000 passengers and earned a return of some 10 to 12 per cent. on capital. Interchange with the State Railways was established that same year at the station of Monasleh.

On February 17, 1914, however, the Egyptian Government bought the railway at a cost of £E376,000, including 7 standard gauge locomotives, 43 carriages, and 124 wagons; also 7 narrow gauge locos, 5 carriages, and 47 six- and ten-ton freight cars.

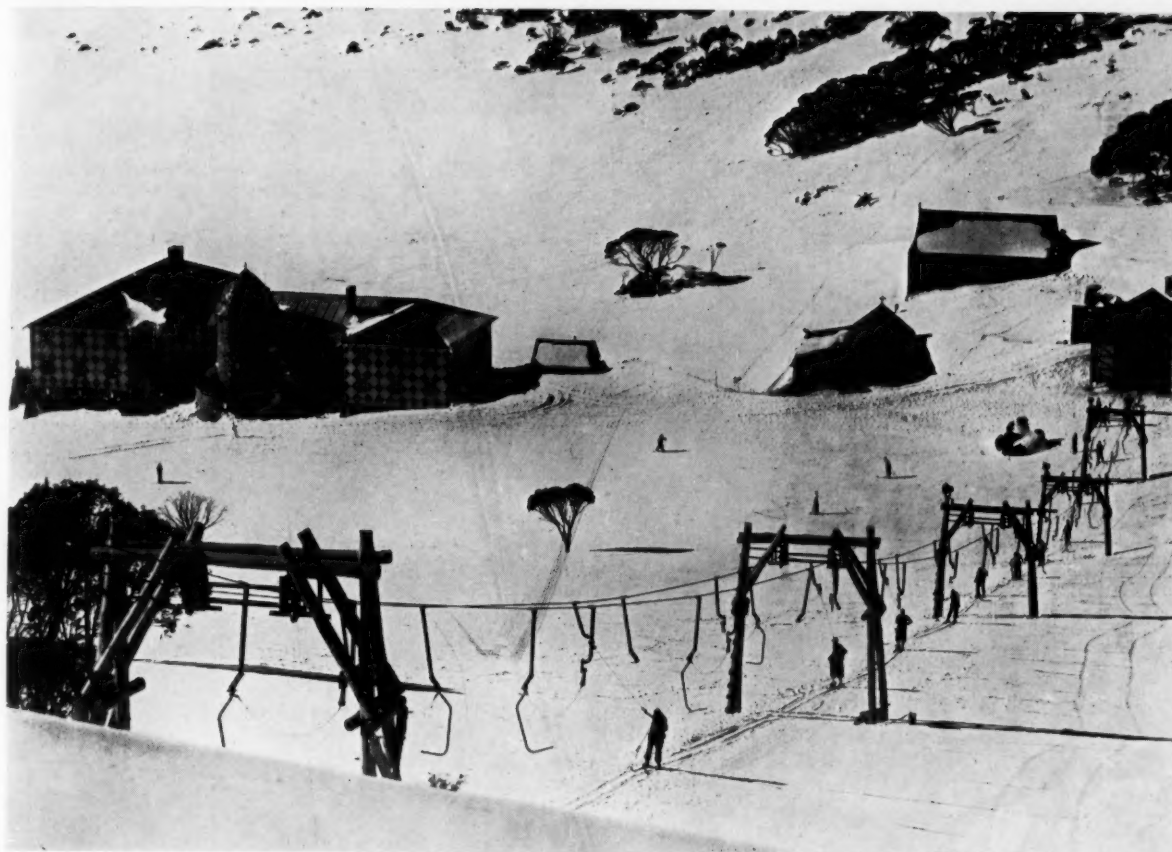
On January 30, 1914, the metre gauge extension beyond the standard gauge terminal was closed down, and the track partly dismantled, as it was then the intention of the Government to extend the standard gauge along the narrow gauge formation. Work was actually begun, and the standard gauge section extended 7 km. as far as the km. 177, to which point break of gauge was transferred, but work was again stopped though an occasional train was run over the narrow gauge section until August 1, 1914.

Since then, the line has been incorporated in the State Railways system and since reaching Mersa Matrouh has acquired its present strategic importance. Also, if the through north coast railway ever materialises, it may form an important link in international communications.

A Century of Superheating

Although Jacob Perkins appears to have been fully aware of the potentialities of superheated steam more than a century ago, the first apparatus intended specifically for locomotives seems to have been that described in the Hawthorn patent dated November 21, 1839, and which comprised a steam chamber formed in the upper portion of the smokebox and extending part of the way round it. Hot-air tubes passing through this steam dryer were proposed for use in certain circumstances. There is no record of the equipment ever going into normal service, and little more was done in the direction of raising the steam temperature above the normal pressure value until almost the end of the century, except that McConnell fitted a steam

dryer formed of a box in front of the tubeplate, with short tubes passing through it, to his 2-2-2 express engines of 1852-54. The systems of Schmidt, Gölsdorf, Aspinall, and others at the end of last century were directed first towards utilising the waste heat in the smokebox gases, but Schmidt soon realised the necessity of a high degree of superheat, and in 1897 produced his first firetube apparatus, consisting of a single flue 18 in. in diameter. The multi-tube superheater followed almost immediately, and subsequently the work of Schmidt, Garbe, Flamme, Robinson, Churchward, Hughes, and Marsh, not a little of which was devoted to the solution of the lubricating problem, has been greatly developed by the Superheater Company and its constituents.



General view of chalet and ski-lift



Interior view of chalet

NEW CHALET AT CHARLOTTE PASS, NEW SOUTH WALES

See page 542



*To prevent glare from open firebox doors on locomotives being observed from the air, all tender engines have been fitted with tarpaulin screens which are carried over the space between the cab and tender during blackout hours.
The one shown here is on a Southern Railway locomotive*



Engine drivers, firemen, and guards on British railways have been supplied with special gas masks and steel helmets

RAILWAY NEWS SECTION

PERSONAL

Mr. R. A. Riddles, Mechanical and Electrical Engineer, Scotland, L.M.S.R., has been appointed Director of Transportation Equipment in the Ministry of Supply.

Colonel A. S. Redman, C.B., Chairman of the Traffic Commissioners, is Deputy-Director of Transportation Equipment in the Ministry of Supply, and Liaison Officer with War Office.

Sir Edward Beatty, Chairman and President of the Canadian Pacific Railway, has been appointed Controller of Shipping for Canada, to work in conjunction with the British Ministry of Shipping.

The Secretary of State for the Colonies has recently approved the following appointments:—

Mr. J. P. C. Bell, Section Engineer, Nigerian Railways, to be Assistant Engineer, Gold Coast Railways.

Mr. W. A. Hutchinson, Assistant Accountant to be Staff Accountant, Gold Coast Railway.

Mr. L. A. McGowan, Assistant Accountant to be Assistant to General Manager, Federated Malay States Railway.

INDIAN RAILWAY STAFF CHANGES

Mr. B. C. L. Bean, O.B.E., V.D., and Mr. W. T. Biscoe, V.D., have been confirmed as Divisional Superintendents on the N.W.R.

Mr. R. Mair and Mr. K. B. Lall have been promoted permanent Deputy Chief Engineers on the E.I.R., and Mr. A. C. Dunsdon and Mr. N. K. Mitra have been promoted to the same rank in a provisionally permanent capacity.

Mr. E. L. Manico, V.D., officiating Chief Operating Superintendent, N.W.R., has been granted 28 months' leave preparatory to retirement, as from October 2.

Mr. Frederick Smith, a summary of whose Report on Transport in Nigeria, was published in our issue of October 13, was described as Transport Manager, whereas his correct title is Chief of the Transport Executive of Lever Bros. and Unilever Limited. A number of Transport Managers come under his supervision, and the term Transport Executive implies one of the limited number of administrative units of the Lever Group—Home Soap Executive; Home Margarine Executive; Oil Mills Executive.

Mr. L. P. Misra, B.Sc., who, as announced in THE RAILWAY GAZETTE of February 24 last, has been appointed to officiate as General Manager of the Eastern Bengal Railway, actually took over charge of the chief executive duties on September 7. He was born in 1888, and joined the Indian State Railways service as an Assistant Engineer in 1912; he was



Mr. L. P. Misra, B.Sc.

Appointed General Manager,
Eastern Bengal Railway

promoted to officiate as an Executive Engineer on the Oudh & Rohilkhand (State) Railway in 1918. In 1924 his services were lent to the Foreign & Political Department of the Government of India, and he was posted as Deputy Manager and Engineer-in-Chief of the Baroda State Railway. During this deputation he built the Baroda State's harbour at Okha, Kathiawar. At the end of his deputation in 1927, he proceeded to Europe to study the divisional organisation and general administration on English and Continental railways. Mr. Misra returned to India and was posted to the East Indian Railway in 1928, but in the following year was placed on special duty with the Railway Board in connection with the implementing of the

Washington and Geneva Conventions. In November, 1930, he was transferred to the North Western Railway as Controller of Stores, but shortly afterwards was again placed on special duty to investigate the question of possible economies in the Engineering Department of the East Indian Railway. Later, in 1932, he was appointed as Deputy Agent on the same Railway; after holding this post for three years he became Divisional Superintendent, Howrah Division. In July, 1938, Mr. Misra's services were requisitioned by the Home Department of the Government of India as a Member of the Federal Public Services Commission. Mr. Misra was the President of the committee appointed by the Railway Board to enquire into the grievances of the crew (ticket checking) staff of the East Indian Railway and of the staff of the combined press of the East Indian and Eastern Bengal Railways. It was on return from duty on the Federal Public Services Commission that he proceeded to the Eastern Bengal Railway as officiating General Manager. As Divisional Superintendent at Howrah he introduced 30-sec. station halts on the suburban train service, and the reservation of seats for third class passengers, a measure commended in the Wedgwood Committee Report.

Mr. Arthur Lea Barber retired on September 15 from the position of Commercial Manager, London Passenger Transport Board. He was born in 1874, and was educated at Leeds Grammar School and Queen's College, Oxford (third class classical moderations and third class history finals). Upon leaving college in June, 1897, Mr. Barber acted as a private tutor for ten months, was then a master for one term at Wellingore Hall, Lincolnshire, and afterwards for two terms at a private school attached to Wellington College. He joined the staff of the British Electric Traction Co. Ltd. in April, 1899, and subsequently became Secretary to the Committee of Management and to the Committee for Associated Undertakings (the predecessor of the British Electrical Federation). In 1901 Mr. Barber was appointed Secretary to the Committee of the Croydon Tramways (then leased to the B.E.T.) and thus began his long association with road transport in the London area. Shortly afterwards, in 1902, he became Secretary of the

Metropolitan Electric Tramways Limited. In November, 1912, the Underground group and the B.E.T. group entered into an agreement defining their spheres of operation, and the London & Suburban Traction Co. Ltd. was formed as a B.E.T. company to hold the shares of the Metropolitan Electric and the London United Tramways; Mr. Barber then became Secretary of the L. & S.T. and also of the L.U.T. (previously an associate of the District Railway). After the outbreak of war, it was decided that the Underground group should take over control of the L. & S.T. and its subsidiaries, and thus in May, 1915, Mr. Barber joined the Underground staff at Electric Railway House. Incidentally, for many years afterwards the B.E.T. re-



Mr. A. L. Barber

Commercial Manager, London Passenger Transport Board, 1933-39

tained a large holding in the L. & S.T., but disposed of these interests in November, 1928, to the Underground Electric Railways Co. of London Ltd. During the war of 1914-19, Mr. Barber became Acting Joint Manager of the North Metropolitan Electric Power Supply Company (a subsidiary of the Metropolitan Electric Tramways). He continued to hold the offices of Secretary of the M.E.T., the L.U.T., and the L. & S.T. until 1921, when he was appointed Commercial Manager of the Underground group. For a time, also, he was Acting Publicity Manager. Upon the formation of the London Passenger Transport Board, in 1933, Mr. Barber was appointed Commercial Manager, and held this position until his retirement. As Chairman of the staff sectional council for the administrative staff his strict impartiality gained the confidence of both the board and the staff. In his earlier years he was a keen sports player; he was Vice-Captain of the B.E.T. Cricket First Eleven for the 1900 season, and Captain of the B.E.T.

Football First Eleven for the 1900-1901 season.

Mr. A. S. Mitchell has been appointed Auditor of Passenger Accounts, Canadian National Railways, at Montreal, in succession to Mr. W. H. Estano who recently retired on pension. Mr. Mitchell was born in Scotland and began his railway career on a British railway. Since 1906 he has served at Montreal in the Passenger Accounting Department of the Grand Trunk Railway and its successor the Canadian National Railways.

Mr. G. E. Bailey, a Director of Metropolitan-Vickers Electrical Co. Ltd., Mr. H. N. Sporborg, a Director of British Thomson-Houston Co. Ltd., and Mr. P. S. Turner (also a Director of Metropolitan-Vickers Electrical Co. Ltd.), have been elected Directors of Associated Electrical Industries Limited.

We regret to record the death, at the age of 89, of Mr. Oscar Harmer, a director of Alfred Herbert Limited.

Mr. J. E. Kitching, who, as recorded in our issue of October 13, has been appointed Mineral Manager, Southern Area, L.N.E.R., entered the service of the North Eastern Railway in the Chief Goods Manager's Department, in 1908, and also spent some time in the Divisional Goods Manager's Office at Hull. In 1911 he became head of the Canvassing Section, and a year later was transferred to the General Manager's Office on special work in connection with the completion of the King George Dock, Hull. Mr. Kitching was appointed Assistant District Goods Manager, Newcastle-on-Tyne, in 1914, but on the outbreak of war he left this position upon being granted a commission in the 17th Northumberland Fusiliers. In 1916 he was transferred to the Docks Directorate, serving at both Dunkirk and Havre, and on demobilisation in 1919 he entered the Development Service of the Ministry of Transport. Mr. Kitching rejoined the North Eastern Railway service in 1921 and a year later became Dock Superintendent, Tyne Dock, a position he relinquished in 1923 to become District Goods Manager of the L.N.E.R., at Middlesbrough. In 1928 he transferred to Newcastle-on-Tyne, and in 1936 was appointed Portmaster at Grimsby and Immingham, the position he now vacates to become Mineral Manager, Southern Area, of the London & North Eastern Railway.

Mr. O. C. Gatenby, who, as recorded in our issue of October 13, has retired from the position of Mineral Manager, Southern Area, L.N.E.R., entered the service of the Manchester, Sheffield & Lincolnshire Railway in 1892, and was for several years Staff Clerk in the General Manager's office. In 1905 he

was appointed Assistant Mineral Manager first at Manchester and later at Chesterfield. In July, 1909, he was transferred to Doncaster, assuming control of the company's coal business in the South Yorkshire district. He was sent back again in 1918 to the Mineral Manager's department at Chesterfield, and two years later became Mineral Manager of the Great Central Railway. Mr. Gatenby was appointed Mineral Manager for the whole of the Southern Area of the L.N.E.R. in 1927, with headquarters at Doncaster.

We publish this week a portrait of Mr. W. Tetley Stephenson who, as recorded at page 407 of our issue of



Mr. W. Tetley Stephenson

Head of Department of Transport, London School of Economics, 1918-1939

September 22, has retired from the position of head of the Department of Transport, London School of Economics.

Mr. R. F. Newman has been appointed General Manager of the Basingstoke works of John I. Thornycroft & Co. Ltd.

Mr. George Stratton has been appointed Sales Manager of Karrier Motors Limited in place of Mr. H. Hattersley, who has recently resigned. Mr. Stratton began his business career as a premium apprentice on the L.N.W.R., and, after holding various engineering positions, was for twenty years General Manager of the Sunderland & District Electric Tramways and a Director of the Sunderland & District Omnibus Company.

Mr. H. Hattersley has become Sales Manager of Dennis Bros. Limited. Mr. H. Hattersley, who has recently resigned from a similar position with Karrier Motors Limited was with that firm for 30 years.

TRANSPORT SERVICES AND THE WAR—9*

More train lighting controversy—S.R. Orphanage a casualty hospital—Further additional trains—Lines closed to passenger traffic—More evacuation details—Changes in Eastern Europe

Last week we remarked that, with the publication of the Southern Railway timetable and the general restoration on all the main-line railways of restaurant-car facilities, a state of stability had been reached. This has been borne out by the fact that, during the past week, there has been no major change in the home railway situation. Train lighting—or the lack of it—continues to occupy an outstanding place in the thoughts and comments of all those passengers who find it necessary to travel after darkness has fallen. On

being extinguished, on receipt of an air raid warning, by means of a masterswitch. "These arrangements," said Captain Wallace, "will be brought into force as rapidly as the necessary equipment becomes available, but I must warn the public that their continuance will depend upon the co-operation of passengers in the strict observance of certain essential precautions, particulars of which will be displayed in the carriages. The provision of reading light in suburban trains presents very much greater difficulties owing to the fre-

LNER

AIR RAID PRECAUTIONS

IMPORTANT NOTICE

The nearest Public Shelter to this Station is

Space for address



Blank L.N.E.R. poster for directing passengers to the nearest air raid shelter

CHEAP DAY TICKETS

London Transport announces that on and from October 9, 1939, those cheap day tickets which were withdrawn at the beginning of the war will be restored until further notice. The tickets referred to are those issued at certain London Transport stations to the following Main Line and Joint Line stations

NORTH HARROW TO AYLESBURY inclusive	WATFORD <small>NET & LMS</small> SOUTHEND
CHESHAM	KEW GARDENS
CROXLEY GREEN <small>NET</small>	RICHMOND



Enquire at the Ticket Office for revised conditions of issue

London Transport cheap day tickets were not withdrawn; only through bookings were affected

LNER

RESTORATION OF RESTAURANT OR BUFFET CARS

ON PRINCIPAL SERVICES BETWEEN

London (King's Cross) and
Leeds, Hull, Newcastle
and Edinburgh

London (Liverpool St.) and
Norwich, Ely and Cromer

London (Marylebone) and
Manchester (London Road)

Luncheon or Dinner 2/6
Tea 1/4

L.N.E.R. poster announcing restaurant-car restoration on October 16

October 10 the Home Office issued a statement in the following terms: "With reference to lighting in railway trains and other railway establishments, it is pointed out by the Home Office that restrictions in regard to railways are necessary as part of air raid precautions generally. The Home Office is in constant consultation with the railway companies with a view to ensuring that the maximum lighting consistent with the necessities of air raid precautions is made available for railway travellers. Railway companies are giving full co-operation in this respect."

Captain Euan Wallace, Minister of Transport, in a written reply in the House of Commons on October 18, said that, as a result of the experiments to which he had referred a week ago, it had been agreed that in corridor stock on long-distance trains white lighting of an intensity sufficient to afford reasonably good reading light was now to be permitted to be installed in the compartments. This would be conditional upon the blinds of all compartment windows being kept drawn throughout the blackout period and the lights

quency of stops and the use of non-corridor rolling stock, and is under further investigation. Meanwhile the lighting in these trains is being improved where necessary to a standard adequate for safety on short journeys."

"Ladies Only"

One result of the lighting restriction is that, for the past month, compartments clearly labelled "LADIES ONLY" have formed a prominent feature of suburban trains, especially on the Southern Railway. This resulted from suggestions made by passengers to the Southern Railway that compartments for ladies only should be reserved near the guard's van, so that women might travel in comfort near a responsible official. The large and prominent labels mentioned above were fixed about September 22 in replacement of the pre-war type, and considerably more compartments are so reserved.

Southern Railway Orphanage

The Southern Railway Orphanage at Woking, like the railways themselves, has been taken over by the Government as a unit in the scheme of national defence. In the crisis of September, 1938, when stock was taken of the country's assets, the orphanage was earmarked by the Ministry of Health as a casualty hospital for the civilian population of

* Previous articles in this series have been "Transport Services and the Crisis," September 1, page 334; and "Transport Services and the War," September 8, page 358; September 15, page 382; September 22, page 410; September 29, page 442; October 6, page 467; October 13, page 495; and October 20, page 525

London, for use in the event of war. By adapting the dining hall, the gymnasium, the recreation hall, and other rooms, for service wards, in addition to the existing commodious dormitories, it was estimated that 450 patients could be accommodated. On September 1 of the present year the Minister of Health required that the children should be evacuated, and the work of converting the orphanage into a hospital should begin at once. The Emergency Powers Act gave the Government authority to take over any land or buildings, and on the appointed day the orphanage came under the control of the Ministry of Health. For some months past large quantities of medical stores have been received and stored on behalf of the Ministry, including 1,500 sheets, 800 blankets, and 400 hot water bottles. The orphanage authorities have also, on behalf of the Ministry, carried out minor structural alterations so that the orphanage is now fully equipped for its new work and has its staff of some 140 doctors, nurses, porters, and others. The orphanage forms part of a large section of which St. Thomas's Hospital, London, is the apex. With regard to the staff of the orphanage, Mr. Evershed, the Secretary-Superintendent, continues to serve in an administrative capacity under the Ministry of Health, and the remainder of the staff from Miss Reynolds, the matron, downwards remain on in occupations as near their normal work as possible.

Canteens on Railway Stations

The Salvation Army, with the co-operation of the railway authorities, is opening canteens at King's Cross and St. Pancras stations, where hot drinks and food may be obtained by Servicemen at any hour of the day or night. Salvation Army officers will be in attendance to help in any emergency affecting a Serviceman or his relatives. Under the auspices of the Young Men's Christian Association, a canteen for the use of men and women of the Services is being opened in Waverley station, Edinburgh.

Further Additional Trains

The Great Western Railway has announced that additional express trains will begin running on Monday, October 30, as follows:—

- 11.5 a.m. From Paddington to Birmingham and Birkenhead.
 - 11.35 a.m. From Birkenhead to Birmingham and Paddington (arrive 5.40 p.m.).
 - 9.25 a.m. From Shrewsbury to Birmingham and Paddington (arrive 2.25 p.m.).
 - 11.55 a.m. and 3.55 p.m. From Paddington to South Wales.
 - 7.35 a.m. From Fishguard Harbour and 8.15 a.m. from Neyland to Paddington (arrive 3.50 p.m.).
 - 1.30 p.m. From Paddington to Plymouth.
 - 12 noon. From Penzance to Paddington (arrive 9.10 p.m.).
 - 8.45 p.m. From Penzance to Paddington (arrive 7.20 a.m.).
- Weekdays and Sundays with sleeping car (from October 29); similar sleeping car facilities will be provided on the 1.15 a.m. from Paddington to Penzance (from October 30).

The foregoing trains all have restaurant car accommodation except the last-mentioned. Special trains were provided by the Great Western Railway in connection with the race meeting at Newbury on October 25 and 26.

On the L.N.E.R. an additional train each way daily between Glasgow, Fort William, and Mallaig, began to run from Monday, October 23, leaving Glasgow (Queen Street) at 3.54 p.m. and Fort William in the reverse direction at 9.25 a.m. Additional trains in Scotland have also been provided locally in the Glasgow and Dundee areas. An additional express train for Grimsby began to run on October 23 daily from King's Cross, 4.10 p.m., and from Grimsby at 8 a.m. Further additional local trains in the London, Norwich, and Cambridge areas have also been introduced.

Appreciation has been expressed of the improved Sunday train service introduced by the Southern Railway for the first time on October 22, and further improvements are to be added, including late trains from Victoria to Brighton at 10 p.m. and 10.28 p.m., and further Pullman and refreshment car facilities. In addition, extra trains have been put on on weekdays on certain lines to provide improved services to Hastings, Ramsgate, and Dover.

Passenger Services Suspended

The G.W.R. timetable, which came into force on September 25, shows that the following passenger services have been suspended:—

Uxbridge, Denham, and Gerrard's Cross.
Pant and Dowlais.
Bearley and Alcester.

The L.M.S.R. emergency timetable indicates that the following passenger services are suspended:—

Birmingham, Handsworth, Soho Road, and Birmingham.
Pontardulais, Gowerton, and Swansea (Victoria).
L.M.S.R. passenger trains at Liscard & Poulton, Seacombe & Egremont withdrawn (L.N.E.R. trains still run).
Stoke-on-Trent and Trentham Park.
Liverpool (Lime Street), Edge Hill, and Southport.
Strathaven and Darvel.
Sheffield (L.M.S.R.), Shirebrook, and Mansfield (L.M.S.R.).
Wakefield (Westgate) and Wakefield (Kirkgate).

The L.N.E.R. timetable which came into force on October 2, shows that the following passenger services have been suspended:—

Hatfield and St. Albans.
Hertford (North) and Hitchin.
Fornett and Wymondham.
Maldon East and Woodham Ferrers.
Woodhall Junction and Horncastle.
Firsby and Spilsby.
Louth and Bardney.
Egginton Junction and Burton-on-Trent.
Leeds, Batley, Dewsbury, and Ossett.
Newcastle Central and Tyne Commission Quay.
Moorgate and King's Cross (L.N.E.R. trains).
Finchley (Church End) and Edgware.
Loch Lomond steamers.
Harwich-Felixstowe and Harwich-Shotley motorboat services.

On October 2 the passenger train services to and from Dundee (Esplanade) station were withdrawn.

Portland Railway Closed

Slackness in the stone trade on account of the war has resulted in the closing of the so-called "Merchants' Railway" in the Isle of Portland. The line extends from Priory Corner to Castletown, and is used for conveying stone from the quarries to the point of shipment. The Portland Railway Company was incorporated by Act of June 10, 1825, and the line was opened in October, 1826. As a result of the last war, traffic was suspended from 1917 to 1920. As recently as 1926, a dividend of 33½ per cent. was paid.

The G.W.R. and the Evacuation

The important part played by the G.W.R. in the civilian evacuation carried out during the first four days of September has formed the subject of an interesting article in the *G.W.R. Magazine*, from which the following notes are culled. On August 31 the order was given, and at 8.30 a.m. on the following morning the first G.W.R. evacuation train left Ealing Broadway station. The evacuees to be transported by the company were mainly from north and east London, and the selection of Ealing Broadway as the principal concentration point and rail-head for the G.W.R. system was a natural result of its connection with the District and Central electrified lines of London Transport. Small contingents, however, were entrained at Paddington and Acton. In the first two days the evacuees were schoolchildren accompanied by teachers; on the remaining days they were mainly mothers with children, and miscellaneous groups. The success of the heaviest part of the scheme—the schoolchildren—rested on complete control from school to billet. The sustained and systematic "feed" on which the railway relied for the smooth functioning of its own evacuation services was secured by a careful, and rehearsed, timing of the journey from school to station. Tickets were issued before leaving school, and the progress of the scheme was so co-ordinated that the evacuees arrived at their entraining stations in complete train-loads, and 15 min. before the departure time of their allotted train.

The general plan was for every train to be made up to twelve coaches and to provide accommodation for 800 passengers. The trains were interchangeable and it was found that 50 train-sets would be required to carry through the programme. The stock was drawn from many parts of the system. It was

concentrated at West London, Old Oak Common, and Acton, at which depots it was marshalled and prepared according to plan. The emergency timetable specified the times at which the empty trains should leave the depots for the entraining point, where provision had been made for them to be stabled in sequence ready to draw into the station for loading up. The preparation of the timetable involved the timing of 64 trains—60 of them from Ealing Broadway—as a standard programme to be applied to each of the four days of the evacuation. The working was from 8.30 a.m. to 5.30 p.m., and trains were planned to leave at 9-min. intervals through the whole period. The actual service was based on the requirements as disclosed by the progress of the evacuation, and varied from 58 trains, with 44,032 passengers, on the first day, to the 28 trains which carried 17,796 passengers on the fourth day. Destinations ranged from such comparatively nearby stations as Maidenhead, Reading, and Oxford, to St. Austell, Camborne, and Penzance in the far west. The timing was so arranged that coaches working outwards up to mid-day on short-distance trains should be returned empty to Acton yard for use on further evacuation specials later in the same day. The timetable also specified times for the return of long-distance stock so that it should be ready for the resumption of the evacuation early the following morning. All evacuation trains bore numbered identity labels. They were booked at express passenger train speeds, and to run non-stop to destination except where it was necessary to make intermediate calls for locomotive purposes. Staff was increased and turns of duty extended, especially on the third day of the evacuation, which fell on a Sunday, and extended working of many signal boxes and control offices was necessary to cope with the flow of trains.

The evacuation programme at reception stations was set in motion by the receipt of a wire from the entraining point. This gave the departure time of the train and the approximate number of evacuees it carried. It was then the duty of the stationmaster to advise the local reception officer and road transport officials so that the final feeding and billeting arrangements might be made. Excellent work was done at reception stations, where the staff and voluntary helpers were required to deal with anything up to 800 evacuees, and to superintend their transfer to distribution centres and road vehicles. As far as possible, all trains were cleaned and re-equipped at reception stations before return to the London division, and additional staff was drafted on to the work where needed. During the four days over which the London scheme was operated, 163 trains were run and 112,994 evacuees were carried. The train-working arrangements were complicated by the services programmed for ordinary passengers. At the week-end, particularly, these services were heavily taxed by the returning holiday traffic from the West and the considerable pressure of unofficial evacuees. Apart from the London area, the G.W.R. was concerned in the evacuation from Birmingham and Smethwick, and from Birkenhead, Liverpool, and Bootle. In addition, the company was called upon to provide numerous specials for Government departments during the same period.

Some L.M.S.R. Evacuation Statistics

Gradually, statistical details are becoming available of the evacuation movements during the period September 1 to 4, which have been described as the greatest civilian mass movement in history. Evacuation of the civil population from the prescribed districts was decided upon at 11 a.m. on August 31 last, and was scheduled to begin next morning. On the L.M.S.R. the evacuation areas comprised London, Birmingham, Manchester, Liverpool, Leeds, Bradford, Sheffield, Glasgow, Edinburgh, and parts of various other districts, and, according to *Carry On*, the L.M.S.R. conveyed in the course of these four days a total of approximately half-a-million in about 1,450 special trains from the vulnerable areas to other parts of the country. The L.M.S.R. share in the London scheme provided for running some 160 outward special trains a day on three successive days. Of this total about 115 trains a day were run on the Western Division main line (from Euston and Broad Street, &c.) and 45 a day on the Midland Division main line (from St. Pancras, &c.). Evacuation specials were run at an average frequency of one train every 8 min. on electrified lines, and one train every 12 min. on the

steam routes. Altogether, in the London area with which the L.M.S.R. was concerned there were approximately 30 entrainment points, from which over 100,000 children with their attendants were despatched. Bearing in mind that nearly all the evacuation trains were brought back empty to London on completion of their journeys, the total number of special evacuation train movements into and out of the London area alone reached the round figure of 200 trains a day, superimposed upon the framework of the ordinary public train service. The London evacuation by no means entailed a monopoly of operating feats. In a typical North Country case, over 25,000 evacuees were received in one L.M.S.R. district in 82 special trains without hitch or mishap of any kind. Extensive arrangements had been made at reception stations for first-aid attention if required, but in a typical provincial district not one child required attention out of 31,000 evacuated.

The Reichsbahn and Propaganda in Canada

Our correspondent in Montreal writes: Two German business premises, one of them a semi-official Reich enterprise, met with Canadian Government action on September 20 when a guard was placed over the Dominion Square Building offices of the German State Railway and on the Beaver Hall Hill premises of the M.A.N. of Canada Limited. A propaganda agency for the Reich has long been suspected to be operating under the cloak of the German State Railway office here and in other North American centres. The premises were sealed a few days ago under orders from Ottawa but arrangements were made on September 20 to place a guard in the offices while piles of documents, papers, lists, maps, and so forth, were got ready for transportation to the Royal Canadian Mounted Police barracks for sifting. Other property, including furniture and lease values, will be turned over to the custodian of enemy alien property pending settlement. With several of its officers and engineers listed among those captured during the first round-up of enemy aliens made soon after hostilities were declared, the M.A.N. of Canada Limited, under seal for 10 days, was given into custody of the enemy alien trustee on September 20. The company is a selling agency for the well-known German diesel engine. The premises of the Norddeutscher Lloyd were taken over a few days earlier.

The Transport to France

Within six weeks of the outbreak of war in 1914 we had transported to France 148,000 men; within five weeks of the outbreak of this war we had transported to France 158,000 men. During this period we have also created our base and lines of communication organisation, so as to assure the regular flow of supplies and munitions of every kind and to receive further contingents as and when the authorities may decide to send them. Until the major operation was over, it was not prudent for any official statement to be made, but outline details have now been made available in Mr. Hore-Belisha's speech in the House of Commons on October 11 (to which we made editorial reference last week) and in an official announcement of October 20. A small body of specially-selected officers in the War Office, with seven confidential clerks and typists, secretly worked out every detail of this plan for moving the Army and the Royal Air Force to France. They foresaw and provided for every need: the selection of ports and docks, of roads and railways, of accommodation of all types, of rest camps and depots, of hospitals and repair shops, at every stage on both sides of the Channel. As Mr. Hore-Belisha said, "their ingenuity, their precision, and their patience would have baffled Bradshaw." The result was that the Expeditionary Force was transported to France intact, without a casualty to any of its personnel. The convoys across the Channel averaged three a night.

Mr. Hore-Belisha pointed out that in 1914 the men marched on to the ships, the horses were led, and a light derrick could lift what the soldier could not carry. There were only 800 mechanised vehicles in all and it was a rare load that exceeded a couple of tons. On the present occasion we have already transported to France more than 25,000 vehicles, including tanks, some of them of enormous dimensions and great weight. As normal shore cranes could not raise them, special ships were required to carry them and

highly trained stévedores to manipulate them. Consequently, as contrasted with 1914, when ordinary vessels took men and their material together from the usual ports, in this case the men travelled separately and the heavier mechanisms had to be transported from more distant ports, where special facilities were available. The arrangements for the re-union of the troops with their material on the other side made an additional complication. Similarly, and for other reasons also, more remote landing places had to be selected in France, thus making the voyage much longer. Again internally, as a precaution against air attack, more devious routes were taken than in 1914. Vehicles and men were dispersed in small groups, halted in concealed areas by day, and moved onwards by night. As with transport, so with maintenance, the problem has become greater than it was a generation ago. Every horse eats the same food and can continue, like man, to move though hungry. Vehicles come to a standstill when their tanks are empty. There are in France 50 types of vehicle and most of them require a different grade of fuel and lubricant. Great reserves have had to be conveyed and stored.

The French Navy undertook the protection of the transports at the end of their crossing until they arrived at French ports. It was necessary to cover the routes of approach from a considerable distance. This work went on day and night, at whatever hour the British transports arrived, and in all several hundreds of ships arrived in French ports in one month. The lighthouses being extinguished, the transports were piloted through French waters with the help of a modified system of buoys. In certain French ports as many as ten transports have been discharged simultaneously on to the dimly blue-lit quays. It is not only to France that British soldiers have been transported. The Middle East has been strongly reinforced and also our garrisons elsewhere, both in material and in men.

The Western Front

Some 300,000 people are stated to have been evacuated from the city of Strasbourg, and from its widespread industrial suburbs, to the interior of France. The trams are still running, but naturally there are few passengers.

Many hospital trains carrying Germans wounded in the October 16 attack on the Western Front have passed through Aachen, say reports reaching Paris from Luxemburg.

Changes in Eastern Europe

There have been no recent signs of any further territorial adjustment in Poland between the spheres of influence of Germany and Soviet Russia, and both parties are reported to be disposing of the sections in their hands in accordance with their respective desires. The temporary frontier adopted on September 22 (see our issue of September 29, page 444) gave place on September 29 to a line more favourable to Germany. It runs from the Lithuanian border near Grodno to Raczk, follows the existing East Prussian frontier to the River Pissa, and then turns southward through Ostroleka, southeast to Brest-Litovsk, and again southward through Włodzimierz and Przemyśl to Lupkow, on the frontier of Slovakia.

A Decree whereby the Reichsmark is made legal tender in the German-occupied area of Poland was promulgated by the High Command of the German army in Poland, on October 1; the zloty is equal in value of 50 pfennigs. It is reported from Berlin that a new German law will come into force on November 1 creating a reserve for Poles in former Polish territory, where all Poles must live. The most northerly point in the Polish reserve will be the town of Ostroleka. The eastern frontier will follow the Russo-German demarcation line. The western border will run southwards from Ostroleka along the rivers Narew and Vistula, then looping west of Kutno, leaving Lodz just inside the German-occupied territory, continuing through Czeszochowa and Krakow, and afterwards following the Slovak frontier. The district around and including Lublin will form an exclusively Jewish reserve. The Silesian industrial district is to become a part of Germany proper, within the administrative district of Katowice. East Prussia will be extended greatly at the expense of Poland, and the German

province of West Prussia is to include Danzig (as its capital) and Bydgoszcz (Bromberg). A new German province of Posen is to have its capital at Posen (Poznan). These changes amount to a virtual restoration of the pre-1914 German boundary. On the other hand, an October 23 report from Kaunas (Kovno) says that negotiations are in progress between Lithuania and Germany for the return of the port of Memel to Lithuania for 55 years. The Teschen area, annexed by Poland in October, 1938, is being returned to Slovakia.

Dr. Dorpmüller, German Minister of Transport, on October 19 opened a temporary railway bridge over the Vistula at Dirschau, states the Official German News Agency. Railway communication between the main Reich and East Prussia was thereby restored. The bridge was built in six weeks. A Soviet-Latvian trade agreement for 1939-40 was signed in Moscow on October 19. Under the new pact Russia grants Latvia the right of transit of goods along Soviet railways and waterways to Murmansk, Soroka, and Black Sea ports. A general conference on railway communications between Germany, Russia, and the Baltic States will take place shortly, states a Reuters message dated October 18. According to a German message despatched on October 17, a direct railway tariff for parcels—*Bahnsammelverkehr*—has been fixed between Germany and Greece via Rosenbach and Salonika. Negotiations are stated to be pending with the Russian railways for the establishment of direct railway freight rates from Germany to Iran, China, Manchukuo, and Japan.

The Simplon-Orient Express in Wartime

We have already recorded the fact that the Simplon-Orient is running regularly, and, in fact, was interrupted for little more than a week. On August 30 its service was curtailed in the west, and the train then ran between Istanbul and Milan, but shortly afterwards the decision was taken to extend it to Paris, and the first through train arrived there on Saturday, September 9; the first departure from Paris for Milan, Belgrade, and Istanbul, was two days earlier, on September 7. The following impressions of a traveller on the wartime Simplon-Orient Express are extracted from an article published in *The Times* of October 21.

"The Orient Express has resumed its journeyings across a troubled Europe. But no longer does it wait importantly for the traveller at Calais. It sets out upon the long journey to Istanbul from the Gare de Lyon in Paris at 9 o'clock each evening. Its departure, across the French countryside, begins almost in silence. Even the cry of the conductor, *En voiture, mesdames et messieurs*, has become a whisper rather than a chant. Sitting in a compartment with the blinds drawn and trying to read a severely censored French newspaper is not likely to keep anyone awake. The beds had been made hours before. I followed the example of most other passengers and turned in. . . . There was no sign of war in Switzerland, not even a preponderance of uniforms. Only when the Orient Express entered Italy did the atmosphere of tension make itself felt again. . . . Few of us were sorry to be leaving Italy and entering Yugoslavia. Meals and the ordinary purchases of travellers at railway stations throughout Italy had proved expensive. And throughout the 24 hours it had been impossible to obtain coffee. . . . The next day was spent passing over the richly cultivated plains of Yugoslavia. In 1914 these were the first areas devastated by war and trampled by the invader. Now, in 1939, they were peaceful and even prosperous. . . . At Belgrade the train from Berlin joined the Orient Express. It was queer to hear German spoken again at the next table and find oneself talking at ease with a blue-eyed official straight from Berlin. Late at night we reached Salonica, or Thessalonica as it is now called. . . . Athens was reached at noon on Wednesday. The Orient Express had left Paris on Sunday evening. It was no more than an hour late. The town was lively and prosperous. Shop windows displayed the best of Paris, London, and Berlin. . . . In the evening the sky signs were alive. Kiosks displayed the newspapers of all nations. Motorcars honked with cheerful disdain. A tired traveller felt that he had reached civilisation again."

STAFF AND LABOUR MATTERS

Railway Staff National Tribunal

The Decision (No. 6) of the Railway Staff National Tribunal on the claims of the three railway trade unions which were heard on September 19 and 20, was given on October 18. In the preface to the decision the tribunal stated that: Between the decisions of the parties to re-submit these claims to the tribunal and the actual hearing, war had broken out. The Government has assumed control of the railways. In these circumstances the tribunal must base its consideration of the financial position on what it was up to the outbreak of war.

In Decision No. 5, signed in February last, the tribunal summarised the financial position as follows:—

"The total traffic receipts for 1938 were £6,831,000 less than in 1937 and receipts from all sources were £7,710,000 less. Even this is not the worst, for expenditure increased in 1938 by £1,208,000, making the decline in net revenue £8,918,000. Moreover, if the tribunal again adopted the basis, which was before so favourable to the staff, of prospects rather than realised results, the position would be even worse, for the movement is now not upwards, but downwards."

In amplification of the latter point it may be remarked that each one of the first eight weeks of 1939 (at the conclusion of which the tribunal gave its Decision No. 5) showed a decline in traffic receipts upon the corresponding weeks of 1938, the total reduction for the eight weeks amounting to £1,488,000. This downward movement continued for a further four weeks, though at a diminished rate, the total further reduction, as compared with 1938, amounting to £301,000. Then, however, came a striking change. In the following 22 weeks there was a total increase as compared with the corresponding weeks of 1938, amounting to £4,409,000. The net result of these fluctuations was an increase in traffic receipts for the 34 weeks of £2,620,000. The 22 weeks ended August 26 showed an increase even on the corresponding weeks of 1937 of £543,000. This does not mean that the receipts for the whole year 1939, assuming that the conditions operating in the 22 weeks prior to the end of August had continued to the end of the year, would have been higher than 1937, since the receipts for the first 12 weeks were less by £1,109,000 than in 1937. In general it may perhaps be fairly said that in August, on the above assumption, the indications were that 1939 would about regain the ground lost in 1938 and would about equal 1937. It seems likely that net earnings might have been about the same in 1939 as in 1937, that is better than 1938 by between £8 and £9 millions, as 1938 was worse than 1937 by about the same amount.

To this summary we must append two observations. First, the tribunal anticipated, when it issued its Decision No. 3, that the net receipts would be

increased by some £5 millions per annum on account of the increased charges authorised by the Railway Rates Tribunal. An increase was obtained in the latter months of 1937 but this anticipation was not realised in 1938 owing to the great fall in traffic. Secondly, the financial position which compelled the tribunal to refuse concessions in Decision No. 5 had changed by August of this year in that, not only had the receipts lost compared with 1937 been largely recovered, but also that the movement of receipts, instead of being rapidly downwards, was rapidly upwards.

The tribunal is unanimous in its findings on the four claims submitted by the Associated Society of Locomotive Engineers & Firemen, and the claim of the Railway Clerks' Association, but on the National Union of Railwaymen's claim for a 50s. minimum wage separate reports are given, one by the Chairman and Mr. H. J. May, and one by Mr. H. E. Parkes.

A.S.L.E.F. Claims

On the claims of the Associated Society of Locomotive Engineers & Firemen the tribunal stated:—

(a) *Increased Rates for Drivers, Motormen, Firemen, and Cleaners.*—The claim, which is identical with that adjudicated upon by the tribunal in Decision No. 5, is in effect for a general increase of 1s. a day, and it would cost £778,000 a year. It was presented on the ground of an increase in strain and responsibility since the time at which the present rates were fixed by the national agreements, and after full consideration was rejected.

The tribunal considers that the present minimum rate of 12s. a day for drivers and motormen should be increased to 13s. a day, the existing provision under which firemen with 10 years' service as firemen receive the driver's minimum rate when firing being cancelled. The rate for such firemen will remain at 12s. per day, except in the cases of firemen (a) not qualified for or desirous of working outside shed yard limits; or (b) employed on shunting in works, yards of railway shops, whose maximum rate will continue at the present figure of 10s. 6d. per day. All other rates for drivers, motormen and firemen will remain unaltered. The cost of this increase will be £39,000 a year.

(b) *Increased Holiday with Pay.*—The attitude of the tribunal to this claim has been described fully in earlier decisions. In present circumstances the tribunal is unable to award any further increase.

(c) *Sunday Duty.*—The claim now made was discussed in Decision No. 5. For the reasons then given the tribunal is not in agreement with the claim as presented. It has, however, come to the conclusion that it is desirable to restore the provisions contained in the national agreements as to minimum payments for Sunday duty.

Though the claim now made is only on behalf of drivers, motormen, firemen and cleaners, the tribunal considers that the restoration of these national agreement conditions should apply also to other grades, whether conciliation, clerical or supervisory.

The actual finding is as follows:—

MINIMUM PAYMENTS

Conciliation Grades other than Trainmen.—A man required to come on duty for one turn not exceeding 3 hours commencing on a Sunday shall be paid a minimum of four hours' pay at Sunday rate. If the time exceeds three hours, or if a man is required to book on twice for two turns commencing on a Sunday, he shall be paid a minimum of 8 hours at the Sunday rate.

Trainmen.—A minimum of a standard day's pay, i.e., 8 hours at ordinary rate, is to be paid for each time of signing on duty.

Salaried Staff.—For one turn not exceeding 4 hours commencing on a Sunday a minimum of 4 hours at Sunday rate is to be paid. For a turn exceeding 4 hours commencing on a Sunday or if required to book on twice for two turns commencing on a Sunday a minimum of 8 hours at Sunday rate is to be paid.

SUNDAY-MONDAY TURNS

With the exception of the alterations in the minimum payments, Sunday-Monday turns of duty are to continue to be paid for in accordance with existing arrangements.

The total cost of the concession will be £150,000 a year.

(d) *Abolition of Extended Rosters.*—The Tribunal has dealt with this claim in Decisions 2, 3 and 5. It sees no reason to change the opinion previously expressed, after a full consideration of the evidence that—

"such cases of unnecessary inconvenience as might have occurred did not in their opinion justify a cancellation of the decision permitting rostering beyond the 8 hours which was 'necessary to the efficient working of such an industry as the railways and, when reasonably worked with due regard to the necessity of avoiding preventable overtime, should not give rise to legitimate complaint.'"

The tribunal understand that the complaints out of which this repeatedly urged claim arises concern especially the rostering, beyond 8 hours, for the disposal of engines.

The disposal of engines is, of course, a recognised part of the enginemens' duties. When disposal is within the eight hours no question therefore arises, and when that time is exceeded, the extra time involved is paid for at the appropriate overtime rates. The arrangements for the disposal of engines are a matter of management, and it may be presumed that the companies do not desire to pay overtime rates when the work can be conveniently done by men who have not completed their eight hours. Nevertheless, the tribunal received evidence to the effect that the practice varies to some extent on the different systems, and it recommends that the arrangements should so far as practicable be generalised on the lines of the best examples cited to it.

R.C.A. Claim

On the claim of the Railway Clerks' Association for extra payment for time worked by clerical staff between 10 p.m. and 4 a.m. the tribunal stated that this claim was submitted in January and February last but the tribunal in Decision No. 5, while expressing sympathy with it, felt unable to give

an award in its favour in view of the financial position at the time.

The tribunal recognises that the one night in 15 arrangement which it awarded in Decision No. 3 has not proved satisfactory and it considers that the financial position is not now, as it was in February, such as to impose the same obstacle to satisfaction of the claim, which involves an annual cost of £58,000. The claim asks that clerks entitled under present rules to one night off in 10 with pay should retain that privilege, while being paid at the time-and-a-quarter rate for night hours actually worked.

The tribunal has carefully considered the case of these clerks and has noted the fact that they are in a different position from every other grade of railway employee, whether clerical or conciliation, in that they are required to come on duty at night throughout the year. In these circumstances the tribunal considers that the present privilege of one night off in 10 with pay should be retained, in spite of the fact that the higher rate will be paid for night hours actually worked. The tribunal therefore finds in favour of the claim, as presented.

N.U.R. Claim

On the claim of the National Union of Railwaymen that the minimum rate of pay of any adult conciliation grade employed (male or female) shall not be less than 50s. per week, the Chairman (Sir Arthur Salter) and Mr. H. J. May made the following statement:—

"After a very careful consideration of evidence as to family budgets, and as to wage-standards in the most nearly comparable occupations, we have come to the conclusion that the case for a 50s. minimum current rate for a man living in London has been fully established. At the same time we consider, as indeed the tribunal as a whole do, that there should be differences between men living in London and those in industrial and rural areas. We also consider that, alike on the basis of human needs and of standards elsewhere observed, there is a substantial difference between the case of women and that of men who normally have to support both a wife and children."

"The railway service is one in which there is exceptional regularity of employment, which does not, however, reach quite the same degree as in many classes of the public service. It is also an industry in which there are certain privileges not elsewhere enjoyed. The industry is substantially non-competitive as regards its own form of transport, but is keenly competitive with road transport and to a certain extent with coastal sea transport, and is therefore not a sheltered industry in the same sense as municipal service. With all these considerations in mind we have examined the wage rates in what seem to us the most comparable occupations, including the industry which is in closest competition with the railways (the main road hauliers); and, with full allowance for all differences, we are satisfied that the 50s. minimum for London workers which we propose is justified by a comparison with the standards in these industries."

"The financial position disclosed in August was certainly not such as to justify a general rise in standards on the ground of an increase in prosperity; for it did no more than indicate a return to the position of two years before. On the other hand, the improvement to this point was, in our view, sufficient to remove the reason for withholding an adjustment shown to be justified on the basis of human needs and a comparison with standards elsewhere in operation."

The finding of Sir Arthur Salter and Mr. May is as follows:—

The minimum base and current rates of pay (at the "governing" cost of living figure of 55) of adult male staff in the conciliation grades shall be:—

	Per week
London	50s.
Industrial areas .. .	48s.
Rural areas .. .	47s.

The minimum base and current rates of pay (at the "governing" cost of living figure of 55) of adult female staff in conciliation grades shall be:—

	Per week
London	38s.
Industrial areas .. .	36s. 6d.
Rural areas .. .	35s.

The direct cost of this finding is about £414,000 a year, but no estimate is given of the indirect cost which would be involved by consequential advances which would be necessary to staff with rates higher than those recommended.

Mr. H. E. Parkes in his finding, states:—

"The advocate for the National Union of Railwaymen presented the claim for a 50s. minimum almost entirely on the ground of human needs and submitted that the amount of the net revenue of the companies should not be a factor in the consideration of the claim by the tribunal. Important, however, as is the question of human needs I cannot agree that it is possible to ignore the ability of an industry to bear the additional cost of substantial increases in minimum rates of wages."

"The cost of the increases to the grades directly affected by the claim is agreed by the parties to amount to £1,018,000. The findings of the tribunal are usually applied to certain grades who are not within its jurisdiction, and were this done in this case the cost would be £152,000. The railway companies have strongly represented to the tribunal that the effect of such an increase in minimum rates as that claimed could not be confined to the grades directly affected. The National Union of Railwaymen certainly limited the claim to an advance on the minimum rates of pay but the effect on rates higher than the minimum is as clearly recognised by the union as by the railway companies, and in effect this claim is not merely for an increase in the minimum, but also for increases in rates of pay well above the minimum."

"The companies have estimated that the cost of such consequential increases will be £959,000. If the above estimates are accepted the total cost of this claim will be about £2,129,000 per annum."

"The findings of the tribunal in the five cases upon which they are agreed are estimated to cost the railway companies £247,000 per annum." If the claim of the National Union of Railwaymen was granted in full the total addition to wages costs of all the findings of the tribunal on this occasion would be some £2,376,000.

"In Decision No. 3 the tribunal estimated that the net revenue for 1937 would be about the same as for the year 1936, i.e., some £35,700,000. It anticipated also that, in the twelve months following that decision, revenue would be increased, on account of the increase in charges authorised by the Railway Rates Tribunal, by about £5,600,000. If this sum is added to the above estimates the total net revenue would be £41,300,000. On this financial position and prospect the tribunal granted certain claims. These findings were estimated to cost £2,900,000. This increased cost of wages reduced the anti-

pated net revenue from £41,300,000 to about £38,400,000."

"In this examination I do not think it is sufficient only to consider the actual figures as at the end of August; it is also necessary to form an opinion as to the normality of the period which ended with the outbreak of war. This is important because I think the decision of the tribunal should be based as far as possible on what minimum wages are appropriate to, and can be borne by, the finances of the companies in normal times. The war will undoubtedly bring its own repercussions on wages, but these are not before the tribunal at the present hearing."

"The conclusion arrived at in the agreed portion of the decision about the financial position at the end of August, is that the net revenue for the whole of 1939, assuming that the conditions operating during the 22 weeks ended August 26 continued to the end of the year, would be about equal to that for 1937, i.e., some £37,900,000. This is about £500,000 less than the net revenue mentioned above deduced in connection with Decision No. 3."

"The increase in gross receipts for the 22 weeks ended August 26, 1939, was £4,409,000 compared with the same weeks in 1938 and £543,000 compared with those in 1937. I do not think that anyone would be prepared to contend that the trading conditions during these weeks were normal. During this period the increase in passenger train receipts compared with 1938 was only some £42,000, while that for all classes of goods train traffic was £4,367,000. Passenger train traffic therefore was only responsible for slightly under 1 per cent. of the total increase. Normally this traffic provides about 33 per cent. of fluctuations in gross receipts."

"This abnormality appears to me to vitiate the conclusions drawn in the agreed portion of this decision as to the probable net revenue for the whole of 1939. It is not possible to arrive at any alternative figure, but I think it may be fairly inferred that, in the absence of the conditions which culminated in the outbreak of war, the startling increase in the 22 weeks would not have taken place and so any estimate of the net revenue for the whole of 1939 would have been lower than the £37,900,000 referred to above. I cannot find, therefore, that there has been any substantial change in the financial position of the railway companies which would of itself render appropriate the increases in minimum claimed by the National Union of Railwaymen."

The finding of Mr. Parkes is therefore as follows:—

The minimum base and current rates of pay (at the "governing" cost of living figure of 55) of adult male staff in the conciliation grades shall be:—

	Per week
London	48s.
Industrial areas .. .	46s. 6d.
Rural areas .. .	45s.

The minimum base and current rates of pay (at the "governing" cost of living figure of 55) of adult female staff in conciliation grades shall be:—

	Per week
London	38s.
Industrial areas .. .	36s. 6d.
Rural areas .. .	35s.

It is estimated that the direct cost of the above finding will be £103,000 per annum and the cost of consequential advances to grades within the jurisdiction of the tribunal £75,000, a total of £178,000.

G.W.R. Ambulance Work, 1938-9

Number of successful students creates a new record

The Great Western Railway ambulance year, which closed on June 30 last, was again a record one in the number of successful students, no fewer than 9,075 members of the staff having passed their examination, an increase of 1,096 over the past session. A particularly gratifying feature is the number of recruits to the movement, namely, 1,075, which is more than double the figure for the previous twelve months. There is little doubt that the disturbed international situation, coupled with the

the L.M.S.R. The second annual competition for women employees was held at Paddington on March 29, when the Paddington team won the "Florence M. Lean" challenge cup and the Shrewsbury team, as runner-up, the "Mabel A. Potter" cup; the trophies were presented to the winners by their donors. For the first time a separate competition for ambulance workers in the Police Department was held at Bristol on February 9, when five teams competed, and the Cardiff and Northern teams were

numerous reports of actual first aid rendered by members of the staff have been received during the year, and these were adjudicated by the company's Chief Medical Officer, and gold, silver and bronze medals and certificate awards presented to the first cases in order of merit. The work of some of the recipients was outstanding and reflected great credit on the men concerned. These awards were presented by the Chairman on the occasion of the final competition.

The company's efficiency awards continue to be a strong incentive for the steady maintenance of ambulance training. During the year 363 gold medals were awarded for 15 years' efficiency, 170 bars for 20 years, 90 quarter century medals, 37 bars for 30 years, and 13 bars for 35 years' efficiency. The total number of efficiency awards issued since their institution is 5,716, made up as under:—

15-year gold medals	3,335
20- " " bars	1,460
25- " " medals	683
30- " " bars	194
35- " " " "	44

The annual gathering of gold medalists took place at Gloucester on May 20, when the party, numbering upwards of 500, was accorded a civic reception. The devoted services of divisional secretaries, which enable so satisfactory a report to be presented, are much appreciated, and it is pleasing to record that the Venerable Order of St. John has recognised this good work by the admission of fourteen members of the staff as Serving Brothers of the Order, one as Officer Brother, and has awarded, in another case, the Velum Vote of Thanks of the Order.

The debt which the Great Western Railway ambulance movement owes to members of the medical profession, to officers of the company for their continued support and interest, and to the two headquarters' organisations, the St. John Ambulance Association and the Priory for Wales, is gratefully acknowledged, and it is to these factors that the steady progress of this fine movement is undoubtedly in a great measure due.

NUMBER OF FIRST AID AWARDS GAINED IN EXAMINATION BY MEMBERS OF THE STAFF FROM 1930 TO 1939 INCLUSIVE
(Year from July 1 to June 30)

Year	Certificate (1st year)	Voucher (2nd year)	Medallion (3rd year)	Medallion Labels for Re-examina- tion	Total
1929-30	1,069	851	805	4,958	7,683
1930-31	1,113	767	764	4,983	7,627
1931-32	788	657	589	5,582	7,616
1932-33	482	492	565	5,568	7,107
1933-34	515	379	443	5,849	7,206
1934-35	657	404	341	5,989	7,391
1935-36	747	515	350	5,908	7,520
1936-37	808	553	427	5,995	7,783
1937-38	797	564	476	6,142	7,979
1938-39	1,605	660	543	6,267	9,075

appeals for National Service, resulted in increased interest in the movement, and this appeal was supported by the company's special first-aid recruiting campaign. The Athlone bowl, awarded to the ambulance division obtaining the highest number of recruits in proportion to the total adult staff, was won by Bristol "B" Division with the excellent percentage of 4.28; the runner-up was the Exeter Division with 3.72 per cent.

The usual series of ambulance competitions was held in the spring of the year, when 279 teams entered, 119 in Class 1 (Advanced) and 160 in Class 2 (Beginners). Challenge trophies and prizes given by the directors of the company were awarded in both classes in each of the seventeen ambulance divisions, and presented by the divisional officers. At the final competition held at Paddington on April 28, the eight teams selected by the semi-final contest participated, and the Directors' challenge shield was won by the Barry Loco. team. The Carvell cup was awarded to the runners-up, the Pontypool Road team, while the Beginners' trophy, the Butt bowl, was won by the Kington team. The trophies, together with prizes, were presented by the Chairman of the company, the Rt. Hon. Viscount Horne, P.C., G.B.E., President of the Great Western Railway Ambulance Centre. The Barry Loco. and Pontypool Road teams represented the company at the inter-railway competition at Wharnccliffe Rooms on May 24.

At the Welsh inter-railway competition held at Cardiff on December 1, 1938, the G.W.R. Aberdare and Barry teams obtained second and third place, six teams entering, three from the Great Western Railway and three from

awarded first and second prizes respectively.

Three new trophies have been generously given to the centre during the past year, the "Mabel A. Potter" Cup, by Mr. F. R. Potter, Superintendent of the Line, for the runner-up in the women's contest; a silver cup, by Mr. J. G. W. Wright, Area Superintendent of Road Transport, for inter-departmental competition in the Exeter Division; and a further silver challenge cup by the Mayor of Weston-super-Mare, Alderman Henry Butt, the donor of several previous trophies, for competition among members of the Weston-super-Mare class. As is usually the case,

SUMMARY OF EXAMINATION RESULTS, 1938-9
(July 1, 1938, to June 30, 1939)—(a)

Division	Certificate (1st year)	Voucher (2nd year)	Medallion (3rd year)	Label (Re-exam- ination)	Total	Total adult staff in division	Percentage of certifi- cates to total adult staff. Per cent.
London "A"	203	75	38	393	709	11,266	1.80
London "B"	66	27	17	316	426	4,977	1.32
Swindon	96	41	58	287	482	10,730	0.89
Bristol "A"	106	56	32	555	749	6,357	1.67
Bristol "B"	88	17	22	254	381	2,058	4.28*
Exeter	138	64	53	342	597	3,706	3.72
Plymouth	74	34	40	390	538	3,789	1.95
Newport "A"	77	22	24	341	464	4,125	1.87
Newport "B"	31	13	9	195	248	1,820	1.70
Cardiff	154	60	54	561	829	9,121	1.69
Swansea	181	63	65	753	1,062	6,755	2.68
Gloucester	35	27	13	256	331	2,426	1.44
Worcester	45	22	14	257	338	2,400	1.87
Birmingham	102	37	27	478	644	7,915	1.29
Chester	119	44	31	379	573	4,419	2.69
Central Wales	50	25	21	283	379	2,062	2.42
South Wales Docks	40	33	25	227	325	5,735	0.70
Total	1,605	660	543	6,267	9,075	89,661	1.79

* Winner of Athlone bowl—Bristol "B" Division

QUESTIONS IN PARLIAMENT

Storage of Bicycles at Stations

Captain S. S. Hammersley (Willesden, E.—C.), on October 11, asked the Minister of Transport whether, in view of the restriction of normal country bus services and the enforced use of distant railway stations, he would consult with the railway companies and secure a reduction of the daily charge for bicycles left at stations from 6d. to 3d.

Captain Euan Wallace: Bicycles are difficult to store and special accommodation, such as racks, has to be provided. This presents little difficulty for regular travellers, but additional casual deposits have to be stored in cloakrooms or other safe places where accommodation can be made available. In all the circumstances I do not think that for a single deposit 6d. is an unfair charge. I would, however, point out that the regular traveller can obtain a period ticket for the storage of his bicycle at a rate which works out at 3d. a day for a weekly ticket and 1½d. a day if a quarterly ticket is taken.

Requisitioning of Vehicles

Captain W. F. Strickland (Coventry—C.) asked the Minister of Transport whether he would state the total number of mechanically-propelled road goods-vehicles requisitioned by his officers for Government departmental work, including air-raid precautions services; and what proportion of these were owned or controlled by the railway companies and other road operators, respectively.

Captain Euan Wallace (Minister of Transport) wrote in reply that 2,508 goods vehicles had been requisitioned by his officers. Vehicles owned by the Government, by local government authorities and statutory public utility undertakers (including the railways) might not be requisitioned. He added: "I cannot give the figures asked for by my hon. and gallant friend in the second part of his question, but no distinction has been made for requisitioning purposes between vehicles owned by railway-controlled operators and those owned by other operators."

Festiniog Railway

Major G. Owen (Carnarvon—Lib.), on October 17, asked the Minister of Transport if he would give his reasons for not taking over the Festiniog Railway, as was the case in the last war; and whether he was prepared to give the railway financial assistance should it be unable to carry on economically as a direct result of war conditions.

Captain Euan Wallace (Minister of Transport) wrote in reply: The controlled railways are those deemed to be necessary for essential transport in war and the Festiniog Railway, which is a narrow-gauge line and does not form an integral part of the main-line system nor provide an alternative to a route carrying heavy traffic, is not con-

sidered to come within that category. I have no funds from which financial assistance could be granted to this company.

Lighting of Trains

Mr. R. J. Boothby (Aberdeen, E.—C.), on October 18, asked the Minister of Transport whether any decision had yet been reached regarding the lighting of trains.

Captain Euan Wallace (Minister of Transport) wrote in reply: As a result of the experiments to which I referred last week in answer to questions by my hon. friends the Members for Abingdon and Leicester East, it has been agreed that in corridor stock on long distance trains white lighting of an intensity sufficient to afford a reasonably good reading light may be installed in the compartments. This will be conditional upon the blinds of all compartment windows being kept drawn throughout the blackout period and the lights being extinguished, on receipt of an air-raid warning, by means of a master switch. These arrangements will be brought into force as rapidly as the equipment becomes available. The provision of reading light in suburban trains presents very much greater difficulties owing to the frequency of stops and the use of non-corridor rolling stock, and is under further investigation.

Railways and Road Transport

Mr. R. De la Bère (Worcester, Evesham—C.), on October 18, asked the Minister of Transport whether, in connection with the Government's new road-rail plan, he would give an assurance that the railways had sufficient trucks, adequate loading and unloading facilities and cranes to handle the increased volume of traffic that they might be called on to do.

Captain Euan Wallace (Minister of Transport): I can assure my hon. friend that no road-rail scheme will be approved that aims at diverting to the railways a greater measure of traffic than they are likely to be capable of handling.

Mr. De la Bère: Can the Minister tell the House who is responsible for the stupefying absurdity in thinking that all long-distance traffic should go by rail and not by road?

Captain Wallace: As far as I am aware, nobody has made the stupefying suggestion that all long-distance traffic should be carried by rail and not by road.

Mr. De la Bère (Worcester, Evesham—C.), on October 18, asked the Minister of Transport whether, in the interests of economy of packing material required for goods which were despatched by rail, he would consider making additional use of motor transport, since goods despatched by road transport did not require so much packing material to protect them.

Captain Euan Wallace: The choice

of available means of transport is primarily a matter for the consignor. In view of the necessity for economy in the use of imported fuel I should not feel justified in taking any special steps to encourage the use of road transport on the grounds suggested by my hon. friend. We are endeavouring to co-ordinate the activities of road and rail transport to the best advantage of the national economy as a whole.

Mr. A. G. Walkden (Bristol, S.—Lab.), on October 18, asked the Minister of Transport whether, in view of the collapse of the scheme for road and rail co-operation prepared under the aegis of the Ministry by the Road & Rail Central Conference, he would introduce legislation to establish a National Transport Board to take over these vital services, together with inland navigation.

Captain Euan Wallace: No scheme has been prepared under the aegis of my Department, and I understand that the negotiations between the road and rail interests, to which the hon. member refers, have not broken down. I am not prepared to recommend the introduction of legislation on the lines suggested.

Lighting Restrictions in Railway Yards

Sir Ralph Glyn (Abingdon—C.), on October 18, asked the Minister of Transport whether he was aware that efficient railway working for both goods and passenger traffic was seriously hampered by the stringent lighting restrictions which the railways were required to observe; that these restrictions increased the risks to railway employees engaged in shunting and similar work on the railways; and whether he was now in a position to indicate that, as a result of his consultations with the Minister of Home Security and the Secretary of State for Air, improved lighting facilities would be made available for railway working, on the understanding that all such lighting was capable of immediate extinction on receipt of an air raid warning.

Captain Euan Wallace: As a result of the experiments to which I referred last week, it has been found possible to improve the lighting in some yards. The experiments are continuing and, as my hon. friend will appreciate, many yards need examination individually and some time is involved in obtaining and installing the necessary equipment. The Railway Executive Committee has been informed that consideration will be given to the possibility of allowing some additional intensity of lighting at points where, owing to the operations performed, the railway companies are satisfied that the standard at present allowed does not meet essential requirements. The scale of lighting approved in railway marshalling yards is already subject to the condition that it must be capable of immediate extinction on receipt of an air raid warning.

RAILWAY AND OTHER MEETINGS

South Indian Railway Co. Ltd.

The annual general meeting of the South Indian Railway Co. Ltd. was held at 91, Petty France, Westminster, on October 25, Sir Ernest A. S. Bell, Chairman and Managing Director, presiding. The Assistant to the Managing Director (Mr. C. A. Worsfold) read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, said that severe competition from road interests still continued. The Central Government had now passed a Bill dealing with the control of road motor traffic, and the Act—the Indian Motor Vehicles Act of 1939—had been in force since July last, except that portion relating to insurance against third party risks.

The Madras Government passed its Bill—the Madras Traffic Control Act of 1938—before the Central Government's legislation was completed. The South Indian Railway was primarily concerned with the Madras Traffic Control Act. Under this, the Madras Government had set up a Central Road Traffic Board, which was responsible for granting permits for through traffic over 100 miles, and District Road Traffic Boards, which were the licensing and controlling authorities for road traffic within their districts. The Railway administration was permitted to place its views before them, and the number of buses on certain sections in direct competition with the railway had not increased. The company had started its own motor services—for goods traffic only—on two short feeder routes, namely, from Coimbatore to Satyamangalam and from Theni to Cumbum. The services were actually started on April 3, 1939, and they had only received a report covering operations in the early stages. At that time conditions were unsatisfactory owing to the failure of the monsoon, but subsequent reports would no doubt prove that they were not over-optimistic in expectations.

Their publicity methods were improved, and the high standard of catering had been maintained. The Chairman was pleased to say that attention had been drawn to their success in this direction by members of the Central Railway Advisory Council.

Continuing, the Chairman said he referred last year to the serious accident which occurred on the metre gauge line near Ayyalur. He was pleased to say that the magisterial inquiry ordered by the Madras Government had absolved the South Indian Railway Administration from all blame.

During the past few years great progress had been made in the development of hydro-electric power schemes. The Mettur and Pykara Power stations were well established, and another scheme was in progress. The Government was encouraging the development of industries in these areas, and these

should in their turn give them new traffic. The extension of the Shoranur-Cochin Railway to link with the Harbour Railway was expected to be completed this month. The Singanallur link was completed and opened for traffic on the 1st of this month, and Coimbatore was now on the broad gauge main line.

In April of this year the Secretary of State made an offer to reduce the rate of interest on the 13½ crores of Government capital from 5½ per cent. to 4½ per cent. with effect from April 1, 1939, such rate to remain unaltered up to December 31, 1945. Their board had confidently expected a more favourable rate, but in order to get this long outstanding question settled had accepted it. The company's share of the reduction of ½ per cent. in the rate of interest payable on the before-mentioned sum of 13½ crores represented about ½ per cent. on their capital.

Coming to the report and accounts for the financial year ended March 31, 1939, the Chairman stated that the capital outlay on the open line during the year amounted to Rs. 25.37 lakhs. The disappointing decrease in gross earnings was almost entirely due to the failure of the north-east monsoon. The districts which depended for their crops, mostly on this monsoon, suffered

greatly and experienced severe drought, amounting almost to famine conditions. As a result passenger earnings fell off considerably. Working expenses decreased by nearly 1 lakh, there being an increase of just over 4 lakhs in ordinary working expenses and a decrease of 5 lakhs on account of renewals and replacements. The net earnings, after certain adjustments, were Rs. 1,88,91,596, or nearly 16½ lakhs less than the previous year. Of this, nearly 5 lakhs was due to the reduction in the amount credited by the railway board on account of rebate on coal. This was owing to the higher sea freight rates on which the rebate was now based. In recommending a distribution of 4½ per cent. the directors had been influenced by two main considerations. First, the advisability in these times of making the maximum distribution possible, consistent with financial rectitude, and, secondly, because the reduction in interest charges which took effect from April 1 last would increase by ½ per cent. the amount which the company would earn in the future.

With regard to their prospects for the current year, the Agent and General Manager had cabled that the gross earnings for the first half, i.e., up to September 30, amounted to Rs. 2,58,06,000 as against Rs. 2,56,42,408, in the corresponding period last year, and he estimated surplus profits at Rs. 84,000 as against Rs. 12,098.

The report and accounts were unanimously adopted.

The Bletchley Collision

As briefly reported in our news section last week, a serious collision occurred on Friday night, October 13, when the second portion of the Night Scot from Euston, L.M.S.R., drawn by two engines, collided with the first portion standing in Bletchley station, while a shunting engine was attaching vehicles in the rear. The driver of the shunting engine (an 0-8-0 tender locomotive), I. Butler, and a porter, E. J. Clements, were killed, as were two persons on the station, a postman, P. C. Geary, who was loading mail bags into a van, and an airman, R. E. Montgomery, who had been in the refreshment room. About 40 persons suffered injury, some of them having to be treated in hospital. Considerable damage was done to the station and the shunting engine. Assistance was quickly summoned, including help from local A.R.P. workers, and rescue work proceeded promptly, at first somewhat hampered by the blackout conditions, though some emergency lighting was soon arranged. The death roll would, in all probability, have been higher but for a timely warning shouted by Inspector Nursaw, who noticed the second train approaching, several persons being thus enabled to jump clear.

Lieut.-Colonel A. H. L. Mount, Chief Inspecting Officer of Railways,

opened his inquiry into the accident on October 18. Mr. L. B. Shoppee, Assistant Operating Superintendent, L.M.S.R., gave evidence concerning the running of the two portions of the express and the work which had to be done at the station in connection with the attaching of vehicles to the first one. The driver of the first portion, W. P. Freestone, gave evidence concerning the weather conditions and the visibility of the signals. He said his brakes were on when the collision occurred. Evidence was also given by the guard and a signalling inspector, but Colonel Mount decided to conduct the rest of the inquiry in private.

The coroner for the district, Mr. E. T. Ray, opened his investigation on October 16, to receive formal evidence on identification of the four victims of the collision, when Mr. J. Hampson, District Controller, L.M.S.R., with representatives of the trade unions and the Post Office, offered expressions of sympathy with the families of the deceased. The inquest was then adjourned until October 30.

The work of clearing the up and down fast lines was rendered difficult by the debris from the station roof and buildings, but they were reopened to traffic on Sunday, October 15, in the afternoon. The slow lines were not obstructed.

NOTES AND NEWS

Italian Railway Accident.—It is reported that when a goods train became derailed in the station at Terni (some 50 miles north of Rome) on October 20, three persons were killed and a dozen injured.

Madras Railway Annuities.—In accordance with the provisions of the Madras Railway Annuities Act, 1908, it is notified that a total sum of £5,190,819 is now invested for the purpose of providing a sinking fund in respect of Annuities Class "B"

East Kent Light Railways Company.—A petition by the directors of the East Kent Light Railways Company praying the confirmation of a scheme of arrangement between the company and its stockholders, which was filed on May 31, is directed to be heard before Mr. Justice Bennett in the Chancery Division on November 7.

Road Accidents in September.—The return of the numbers of persons reported to have died in Great Britain during September as the result of road accidents, shows a total of 1,130. This compares with 554 in September, 1939; the August figures were 617 in 1939 and 563 in 1938. The greatest rise in fatalities was with adult pedestrians; the September, 1938, figure of 148 rose to 551. Next to adult pedestrians, motor cyclists are the most numerous victims, the figure of 113 in September, 1938, having risen last month to 182. The geographical distribution of these accidents is also interesting, and the following figures show fatalities for last month compared (in brackets) with the corresponding figures for September, 1938. The Metropolitan Police district figure is 142 (68); Chester county 26 (4); Buckingham county 19 (5); Lancaster county 35 (15); Manchester 24 (2); and Glasgow 30 (10). On the other hand there are some notable decreases such as Southampton county 16 (17). In countries the figures total as follow:

England 960 (490); Wales 34 (18); Scotland 136 (46).

Japanese Railway Accident.—It is reported that as the result of the derailment of an electric train near Nikko on October 12, said to be due to defective brakes, 17 persons were killed and many injured.

Mexican Railway Accident.—On Saturday, October 21, a freight train from Vera Cruz to the Pacific Coast was derailed between Santa Lucrecia and Matias Romero. Two petrol tank cars exploded and caught fire and 40 persons are reported to have been killed, or lost their lives in the fire. They were workers and their families who were travelling in goods wagons.

Passenger Train Collisions.—On October 18 at 12.52 p.m. a goods engine ran into the rear of an L.N.E.R. passenger train about to depart from Horsforth station to Leeds, partly telescoping the rear vehicle, a composite brake. There were no casualties. On October 23 a shunting engine collided with the rear of a Cheshire Lines Manchester express which had just left Liverpool Central. Two horseboxes at the rear of the train were smashed, but only one person received injury.

Floods on Railways.—In the early morning of October 18 heavy rain caused the flooding and temporary closing of a number of lines over an area extending from Leicester to Aylesbury, and Coventry to Bedford. The L.M.S.R. main line near Castlethorpe and the lines between Northampton and Bedford and Northampton and Wellingborough all had to be closed for a time. Traffic between Bruce Grove and Seven Sisters on the Great Eastern section of the L.N.E.R. was suspended for several hours on the morning of October 24, on account of flooding caused by the bursting of a large water main which covered the track to a depth of 5 ft. The line was reopened early in the afternoon.

British and Irish Railway Stocks and Shares

Stocks	Highest 1938	Lowest 1938	Prices	
			Oct. 24, 1939	Rise/ Fall
G.W.R.				
Cons. Ord. ...	65½	25¾	30	+3
5% Con. Prefce....	118¾	74	81	+1
5% Red.Pref.(1950)	111¾	90	92½	—
4% Deb. ...	111	97½	93½	—
4½% Deb....	112½	100½	96½	—
4½% Deb.	118½	104	102½	—
5% Deb.	131½	119	112½	—
2½% Deb.	69¾	60	56½	—
5% Rt. Charge ...	129	114	106	—
5% Cons. Guar. ...	128½	103	99½	—
L.M.S.R.				
Ord. ...	30½	11	11½	+1
4% Prefce. (1923)	70¼	23	36	—
4% Prefce.	82¼	43¾	56	+2
5% Red.Pref.(1955)	103½	66	76	—
4½% Deb.	105½	85	87½	—
5% Red.Deb.(1952)	114¼	105	104	—
4% Guar.	102¾	77½	78	—
L.N.E.R.				
5% Pref. Ord. ...	89½	3½	3½	—
Def. Ord.	47½	21½	2½	—
4% First Prefce.	68¼	21	29½	—
4% Second Prefce.	27¼	8	9½	—
5% Red.Pref.(1955)	97	40¼	45	—
4% First Guar.	97½	66¼	67½	+4
4% Second Guar.	91¼	52	59½	+2
3% Deb.	79¼	60	60½	+1
4% Deb.	104½	77	80	+1
5% Red.Deb.(1947)	110½	97	100½	—
4½% Sinking Fund Red. Deb.	108½	101	98	—
SOUTHERN				
Pref. Ord. ...	87	47½	61	+3
Def. Ord.	21½	9¼	10½	+1
5% Pref.	115	83	83	+3
5% Red.Pref.(1964)	115½	98	97½	—
5% Guar. Prefce.	128½	106	105	—
5% Red.Guar.Pref. (1957)	116	108½	105	—
4% Deb.	109¼	95	93½	—
5% Deb.	129	117	112½	—
4% Red. Deb.	107	101½	101½	—
1962-67				
BELFAST & C.D.				
Ord. ...	4	3½	4	—
FORTH BRIDGE				
4% Deb. ...	102	99½	83½	—
4% Guar.	103¼	94½	82½	—
G. NORTHERN (IRELAND)				
Ord. ...	5½	2½	6	—
G. SOUTHERN (IRELAND)				
Ord. ...	25½	8½	10	—
Prefce.	35	13	21	+½
Guar.	70¼	30½	36	+1
Deb.	83	56	54	—
L.P.T.B.				
4½% "A" ...	119½	107½	104	+1
5% "A" ...	130	117	108	+1
4½% "T.F.A." ...	108	98	102	+1
5% "B" ...	122½	105	103	+1
"C" ...	84	68	65	—
MERSEY				
Ord. ...	24¼	16½	20½	—
4% Perp. Deb.	102½	94¾	90	—
3% Perp. Deb.	77	69	65½	—
3% Perp. Prefce.	66½	57	52½	—

Irish Traffic Returns

IRELAND		Totals for 42nd Week			Totals to Date		
		1939	1938	Inc. or Dec.	1939	1938	Inc. or Dec.
Belfast & C.D. (80 mls.)		£ 2,081	£ 1,783	+ 298	£ 112,344	£ 108,679	+ 3,665
" " goods		578	431	+ 147	19,380	18,313	+ 1,067
" " total		2,659	2,214	+ 445	131,724	126,992	+ 4,732
Great Northern (543 mls.)		9,450	9,000	+ 450	484,750	478,650	+ 6,100
" " goods		13,250	11,500	+ 1,750	444,950	386,800	+ 58,150
" " total		22,700	20,500	+ 2,200	929,700	865,450	+ 64,250
Great Southern (2,076 mls.)		32,075	29,912	+ 2,163	1,587,136	1,588,706	- 1,570
" " goods		62,407	50,578	+ 11,829	1,811,742	1,696,055	+ 115,687
" " total		94,482	80,490	+ 13,992	3,398,878	3,284,761	+ 114,117
L.M.S. Northern Counties (271 mls.)		4,070	3,590	+ 480	201,170	198,330	+ 2,840
" " goods		3,790	2,510	+ 1,280	125,240	110,890	+ 14,350
" " total		7,860	6,100	+ 1,760	326,410	309,220	+ 17,190

OFFICIAL NOTICES

Rio Tinto Company Limited

NOTICE IS HEREBY GIVEN that the Share Transfer Books of the Company will be closed from Tuesday, the 31st October, to Tuesday, the 14th November, both days inclusive, for the preparation of the Half-yearly Dividend on the Preference Shares, which will be paid on the 15th November. Holders of Share Warrants to Bearer are informed that they will receive payment of the said Half-yearly Dividend on the Preference Shares at the rate of Two Shillings and Sixpence per Share, less Income Tax, on and after Wednesday, the 15th November, 1939, on presentation of Preference Share Coupon No. 85, either at the Company's Office in London, or at the Société Générale, 29, Boulevard Haussmann, Paris.

Coupons for payment in London must be left four clear days previously for examination, and may be deposited forthwith.

By Order,
J. DAVIDSON,
Secretary.

Offices of the Company:
11, Old Jewry, London, E.C.2.
24th October, 1939.

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS.

APPLICATIONS from qualified candidates are invited for the following post:—

ASSISTANT LOCOMOTIVE RUNNING SUPER-INTENDENT required by the Palestine Railway for two tours of 18 to 24 months' residential service, with possible permanency. Salary, £P420 a year, rising to £P550 a year, plus expatriation allowance of £P50 a year and a temporary and variable cost of living allowance at present fixed at the rate of £P48 a year. (£P1 equals £1.) Free passages. Candidates, preferably unmarried, age 22-45, must have served a pupilage or a full apprenticeship in the Locomotive Workshops of a British Railway, and must be Associate Members of the Institution of Civil or Mechanical Engineers, or hold an engineering degree or diploma exempting them from passing the qualifying examination for such membership.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M 8834.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Universal Directory of Railway Officials and Railway Year Book

45th Annual Edition, 1939-40

Price 20/- net.

THE DIRECTORY PUBLISHING CO., LTD.

33, Tothill Street, Westminster, S.W.1

Civilian Gas Mask Containers

Joseph Kaye & Sons Ltd., of Leeds, a firm well known in connection with the manufacture of patent safety locks for railway carriages, motor vehicles, and other uses, and also of patent force-feed oilcans, is now placing on the market a civilian gas-mask container of the type illustrated. Strongly made and rainproof, these containers are attractively finished in cellulose, and three different colour styles are available. The base and interior for a distance of 3 in. upwards are lined with Thames paper board which prevents damage to the rubber casing or mouth-piece of the mask. Each mask is comfortably housed without rattle. The strap is of strong webbing made luminous at two points, at front and back, and when the container is being carried it is impossible for the lid to become detached. We understand that enquiries for large supplies of these containers have reached the manufacturers from railway companies. The containers are being marketed at 2s. 6d. each, less postage.



The Kaye civilian gas mask container

Railway and Other Reports

Trent Motor Traction Co. Ltd.—

This company is paying an interim dividend of 4 per cent., the same as a year ago.

Potteries Motor Traction Co. Ltd.

—An interim dividend of 4 per cent., less tax, has been declared, the same as a year ago.

Aire & Calder Navigation.—An interim dividend of 2 per cent. in respect of the year 1939 has been declared. A similar declaration was made in respect of 1938.

Stothert & Pitt Limited—The directors propose to pay an ordinary dividend of 10 per cent. (the same) and a cash bonus of 5 per cent. (against 2½ per cent.) for the year ended June 30, 1939. Net profits amounted to £115,070, and the sum recommended to be placed to reserve is £60,500. Last year the net profit was £66,230, out of which £30,000 was placed to reserve.

Contracts and Tenders

The Crown Agents for the Colonies have placed an order with the English Electric Co. Ltd. for eight double-bogie 200 b.h.p. diesel-electric railcars. Further particulars are given in this week's *Diesel Railway Traction Supplement*.

The order for 20 locomotive boilers for India booked by the North British Locomotive Co. Ltd. was from the North Western Railway, not from the G.I.P. as stated in last week's issue.

Gas-filled and vacuum tungsten filament lamps are required by the Bombay Baroda & Central India Railway. Tenders to be in by November 8. Particulars from the Secretary, Guildcroft, Epsom Road, Guildford, Surrey.

The South African Railways are enquiring for 300 steel bogie wagons with drop sides, together with sets of drawgear, wheels, and axles. Tenders

(No. 2339) to be in at Johannesburg by December 11. Further particulars from D.O.T. Ref. T.28064/39.

The Central Railway of Brazil is reported to have ordered from four American corporations 17 steam locomotives at a cost of \$1,870,000, and 1,000 freight cars at a cost of \$4,000,000.

The Canadian Pacific Railway is in the market for 12 Pacific and 12 Mikado locomotives, 1,000 box cars, 100 automobile cars, 200 refrigerator cars, 10 mail vans, and 33,500 tons of rails.

The North Western Railway of Brazil has ordered 23,000 tons of rails from the United States Steel Corporation and the Bethlehem Steel Company. Negotiations for the purchase of another 70,000 tons are under way.

The Chilean State Railways are understood to be enquiring for seven electric locomotives of the double-bogie type.

The Metropolitan-Vickers Electrical Co. Ltd. has received a part contract for Cosmos electric lamps required by the L.M.S.R. for the period ending July 31, 1940. The General Electric Co. Ltd. has received an order from the L.M.S.R. for the supply of Osram lamps for a period of 12 months.

The South African Railways invite tenders (No. 2280) for one 20-ton self-propelling swing-jib steam crane. Tenders to be in at Johannesburg by November 20. D.O.T. Ref. No. T. 27778/39.

The South African Railways are enquiring for quantities of machined and unmachined bolts and nuts. Tenders (Ref. No. 2367) to be in at Johannesburg by November 6. Further particulars from D.O.T. Tenders also are invited, by November 16, for quantities of taper pins and flat cotters. (Tender Ref. No. 2393.)

Railway Share Market

The continued rise in gilt-edged securities, which has been accompanied by the assumption that in the near future the expected new Government loan is likely to be issued on attractive terms, has increased the belief that more normal conditions are rapidly developing in the stock and share markets. All British Government stocks have now risen above the official minimum prices fixed on the eve of the war, and in sympathy with this movement a better tendency has been shown in the debentures and other prior charges of the home railways. Moreover, despite the wages award, speculative activity in the junior stocks has been inclined to increase, aided by hopeful market estimates as to the terms on which Government control has been effected, although no official announcement has, of course, yet been made, and these estimates must, therefore, be regarded as guesswork. It is also being pointed out in the market that the railways are favourably placed as regards the Excess Profits Tax. Although it is not impossible that a rise of several points would be justified in some cases, it must be borne in mind that at this stage the junior stocks have to be classed as carrying a large speculative element, pending the terms offered by the Government,

an announcement regarding which can hardly be much longer postponed.

A good deal more attention was given to L.N.E.R. issues, and as compared with a week ago the first guaranteed has risen from 63 to 68, while the second guaranteed was a point better at 59. Moreover, the first preference, which has now risen above the unofficial minimum price, was fairly active around 29½, but the second preference, although more active, was little changed at 9½. The preferred was 3½, compared with 3½ a week ago, but the deferred remained at 2½. The 4 per cent. debentures transferred up to 79½ and the 3 per cent. debentures up to 61½. L.M.S.R. 4 per cent. first preference attracted buyers and improved on the week from 53½ to 56, while the 4 per cent. 1923 preference gained a point to 36, and the 4 per cent. guaranteed changed hands frequently at around 76½. Business in the 4 per cent. debentures took place between 86 and 86½ and in the 5 per cent. stock at 103. L.M.S.R. ordinary improved from 10½ to 11. As regards Great Western ordinary the price has moved up from 27 to 29½, and the 5 per cent. preference was more active with dealings around 79½. The 5 per cent. consolidated guaranteed changed hands between 98½ and 100,

and the 5 per cent. rent charge at 104½ and 104½. Southern preferred reflected the better trend with a rise from 58 to 61½, and the deferred stock improved from 9½ to 10½. Moreover the 5 per cent. preference, which attracted buyers in view of the apparently generous yield, moved up to 83. Transactions in the 5 per cent. guaranteed preference stock were fractionally above 103 and those in the 4 per cent. debentures up to 92½. It is being anticipated that debentures, guaranteed and senior preference stocks are likely to show further improvement if the upward trend in gilt-edged stocks is continued, but the junior preference and ordinary stocks must be expected to fluctuate in accordance with the general market trend and they will, of course, also be influenced by prevailing views as to the basis on which holders will be compensated during the period of Government control. London Transport "C" remained at the official minimum price of 65.

There was again very little business in Argentine railway stocks, awaiting the results and annual meetings. Elsewhere San Paulo at 30 held last week's improvement, while Canadian Pacific were fractionally better at 7½.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1938-39	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to Date			Shares or Stock	Prices						
			Total this year	Inc. or Dec. compared with 1938		Totals		Increase or Decrease		Highest 1938	Lowest 1938	Oct. 24, 1939	Yield % (Note)			
						This Year	Last Year									
South & Central America	Antofagasta (Chili) & Bolivia	834	15.10.39	£ 15,340	+	£ 3,140	41	£ 546,370	£ 616,180	-	£ 69,810	Ord. Stk.	14	71½	91½	Nil
	Argentine North Eastern	753	14.10.39	ps. 150,000	-	ps. 6,900	16	ps. 2,705,300	ps 2,770,800	-	ps. 65,500	"	61½	2	31½	Nil
	Bolivar	174	Sept. 1939	4,300	+	800	39	38,350	33,650	+	4,700	6 p.c. Deb.	8	7	7	Nil
	Brazil	2,801	14.10.39	ps1,168,000	+	ps12,000	16	ps18,473,000	ps17,807,000	+	ps666,000	Ord. Stk.	61½	31½	3	Nil
	Buenos Ayres & Pacific	190	26.8.39	£ 136,100	+	£ 12,600	9	£ 1,048,400	£ 1,002,400	+	£ 46,000	Mt. Deb.	15½	8	12	Nil
	Buenos Ayres Central	5,082	14.10.39	ps1,837,000	-	ps150,000	16	ps28,597,000	ps30,509,000	-	ps1,912,000	Ord. Stk.	125½	81½	71½	Nil
	Buenos Ayres Gt. Southern	1,930	14.10.39	ps. 696,000	-	ps18,000	16	ps10,431,000	ps9,512,000	+	ps919,000	"	175½	5	6	Nil
	Buenos Ayres Western	3,700	14.10.39	ps1,614,450	-	-	16	ps29,861,600	ps25,613,650	+	ps4,247,950	"	13½	5½	71½	Nil
	Central Argentine	Do.	-	-	-	-	-	-	-	-	-	Dfd.	6	2½	2½	Nil
	Cent. Uruguay of M. Video	972	14.10.39	£ 17,260	-	£ 735	16	£ 252,396	£ 256,635	-	£ 4,240	Ord. Stk.	3	1¼	11½	Nil
	Costa Rica	188	June 1939	22,240	-	6,129	52	270,756	314,399	-	43,643	Stk.	28	22½	22½	87½
	Dorada	70	Sept. 1939	14,400	-	1,400	38	123,700	148,000	-	24,300	1 Mt. Db.	105½	104	102½	57½
	Entre Rios	810	14.10.39	ps. 222,200	-	ps. 6,900	16	ps. 4,054,000	ps3,915,300	+	ps148,700	Ord. Stk.	71½	31½	5	Nil
	Great Western of Brazil	1,092	14.10.39	£ 12,000	+	£ 1,100	41	£ 333,600	£ 277,700	+	£ 55,900	Ord. Sh.	3/-	1/-	516	Nil
	International of Cl. Amer.	794	Aug. 1939	\$425,770	+	\$61,972	34	\$4,123,397	\$3,818,614	+	\$304,783	-	-	-	-	-
	Interoceanic of Mexico	-	-	-	-	-	-	-	-	-	-	1st Pref.	6d.	6d.	1½	Nil
	La Guaira & Caracas	22½	Sept. 1939	5,755	-	455	39	55,105	46,880	+	8,225	Stk.	8	61½	71½	Nil
	Leopoldina	1,918	14.10.39	23,098	-	2,920	41	847,631	858,711	-	11,080	Ord. Stk.	4	1	1½	Nil
	Mexican	483	21.8.39	\$286,000	+	\$35,500	8	\$2,003,100	\$1,988,800	+	\$14,300	"	14	1½	1½	Nil
	Midland of Uruguay	319	Sept. 1939	8,611	-	1,619	13	25,665	25,076	+	589	"	7½	1½	1½	Nil
	Nitrate	386	15.10.39	6,462	+	851	41	93,744	115,806	-	22,062	Ord. Sh.	52.9	19½	158	71½
	Paraguay Central	274	14.10.39	\$3,029,000	+	\$145,000	16	\$50,610,000	\$47,871,000	+	\$2,739,000	Pr. Li. Stk.	60	55½	40½	141½
	Peruvian Corporation	1,059	Sept. 1939	66,375	+	1,570	13	192,214	212,547	-	20,333	Pref.	55½	13½	11½	Nil
	Salvador	100	2.9.39	£7,734	-	43,343	10	493,598	£115,426	-	£21,828	Pr. Li. Db.	23	20	19½	Nil
	San Paulo	153½	1.10.39	36,812	+	8,155	39	1,220,553	1,284,389	-	63,836	Ord. Stk.	63	28	29½	65½
	Taltal	160	Aug. 1939	2,130	-	580	9	3,685	6,220	-	2,535	Ord. Sh.	15½	1	9½	87½
	United of Havana	1,353	14.10.39	16,234	+	1,049	16	270,628	259,784	+	10,844	Ord. Stk.	35½	1½	1½	Nil
	Uruguay Northern	73	Sept. 1939	1,022	+	69	13	2,603	2,770	-	167	Deb. Stk.	2	1	2	Nil
Canada	Canadian National	23,698	14.10.39	1,006,215	+	149,075	41	30,428,912	27,823,881	+	2,605,031	-	-	-	-	
	Canadian Northern	-	-	-	-	-	-	-	-	-	4 p.c.	72	60	64½	65½	
	Grand Trunk	-	-	-	-	-	-	-	-	-	4 p.c. Gar.	104	90	93	45½	
Canadian Pacific	17,171	14.10.39	739,400	-	14,400	41	22,701,600	21,608,800	+	1,092,800	Ord. Stk.	87½	41½	7	Nil	
India	Assam Bengal	1,329	31.8.39	48,997	+	4,281	22	593,329	574,725	+	18,604	Ord. Stk.	81½	70	60½	415½
	Barsi Light	202	30.9.39	11,032	-	1,703	26	59,325	72,975	-	13,650	Ord. Sh.	60½	54½	45	87½
	Bengal & North Western	2,112	30.9.39	59,505	-	11,289	26	1,243,673	1,382,370	-	138,697	Ord. Stk.	311	278	233	73½
	Bengal Doonars & Extension	161	10.9.39	4,768	+	58	23	56,235	62,265	-	6,030	"	89	83	86½	71½
	Bengal-Nagpur	3,267	30.9.39	214,350	+	15,175	26	3,804,535	3,419,242	+	385,293	"	95½	90	84½	45½
	Bombay, Baroda & Cl. India	2,986	10.10.39	226,275	-	225	27	4,453,650	4,484,025	-	30,375	"	112½	95	93½	67½
	Madras & Southern Mahratta	2,967	20.8.39	129,225	-	5,995	20	2,321,802	2,227,450	+	94,352	"	108	97	95½	71½
Various	Rohilkund & Kumaon	546	30.9.39	12,164	-	554	26	256,842	278,741	-	21,899	"	308	285	243	77½
	South Indian	2,531½	20.9.39	116,852	-	3,493	24	1,988,671	1,968,975	+	19,696	"	104	101	87½	51½
	Beira	204	July 1939	76,744	-	-	44	796,101	-	-	-	-	-	-	-	-
	Egyptian Delta	623	10.8.39	5,875	+	486	19	67,548	65,905	+	1,643	Prf. Sh.	-	5/6	1½	Nil
	Kenya & Uganda	1,625	May 1939	206,557	-	11,295	21	1,220,870	1,309,332	-	88,462	-	-	-	-	-
	Manila	-	-	-	-	-	-	-	-	-	-	B. Deb.	49	41	43	8½
	Midland of W. Australia	277	Aug. 1939	11,847	-	2,567	9	23,105	27,657	-	4,552	Inc. Deb.	93½	89	89	4½
Nigerian	1,900	25.8.39	22,698	+	3,038	22	577,019	639,212	-	62,193	-	-	-	-	-	
Rhodesia	2,442½	July 1939	360,976	-	-	44	3,607,133	-	-	-	-	-	-	-	-	
South Africa	13,284	30.9.39	673,831	+	35,323	27	17,134,722	16,078,052	+	1,055,670	-	-	-	-	-	
Victoria	4,774	June 1939	693,446	-	31,680	52	9,360,329	9,809,155	-	448,829	-	-	-	-	-	

NOTE. Yields are based on the approximate current prices and are within a fraction of 1/16 Argentine traffic is now given in pesos.

† Receipts are calculated @ 1s. 6d. to the rupee.

§ ex dividend